IDG .com

NO OVERNIGHT SUCCESS Customers say Windows 2000 rollouts proceeding slowly a year after software's release. Page 14.

NEW FCC ATTITUDE Chair Michael Powell to take more "deregulatory" tack than predecessors. Page 27.

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NetworkWorld

February 12, 2001 Volume 18, Number 7

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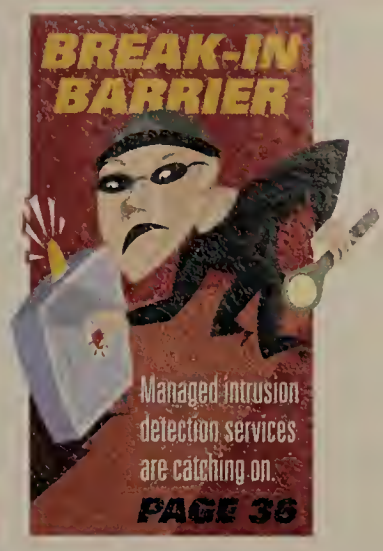

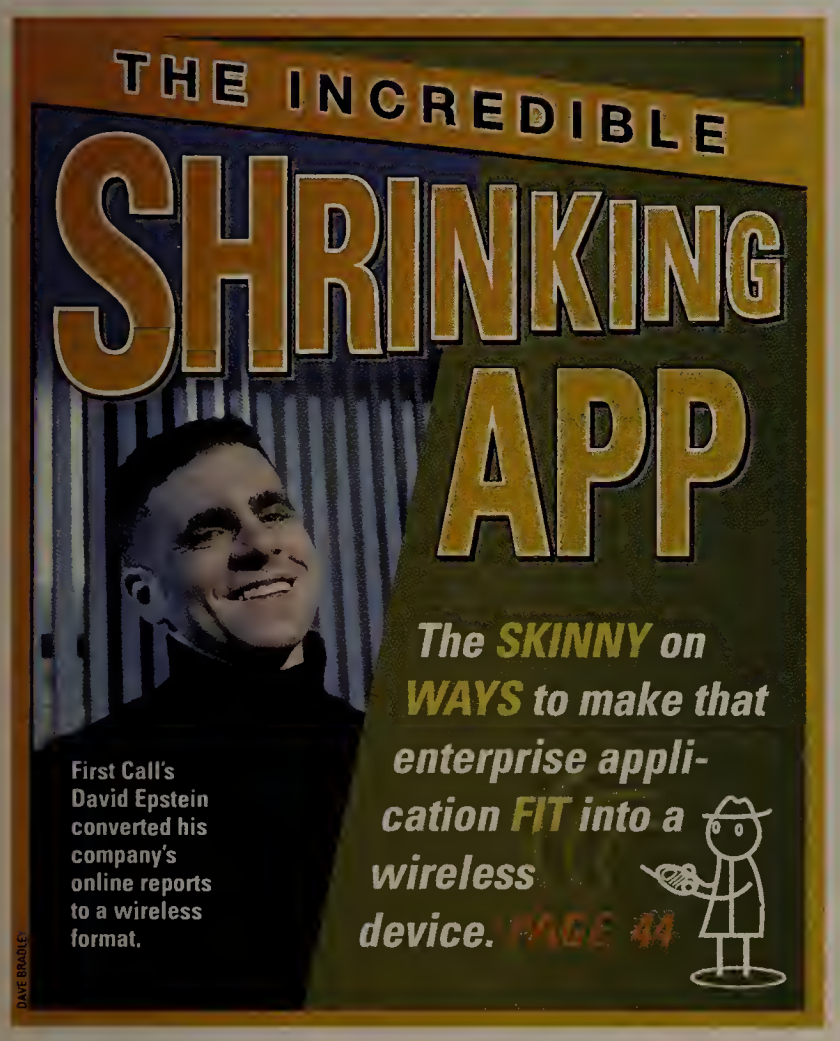

Federal net privacy mandate riles healthcare industry

BY ELLEN MESSMER

WASHINGTON, D.C. — Virtually the entire healthcare industry rose in opposition to new federal healthcare privacy rules last week, saying the regulations — more than 1,700 pages, with more coming — will hinder medical care and require companies to overhaul network and systems infrastructures to meet new security demands.

Thirty-nine healthcare organizations, including the Blue Cross and Blue Shield Association, the American Pharmaceutical Organization, the Association of Medical Colleges — even the U.S. Chamber of Commerce — issued a joint letter asking the Bush administration's Health and Human Services (HHS) Secretary Tommy Thompson to postpone new privacy rules from going into effect Feb. 26 until their complaints are heard. The Clinton administration issued the tough new federal healthcare privacy rules aimed at protecting patient information in December.

This uprising against the Health Insurance Portability and Accountability Act (HIPAA) rules follows a similar plea to HHS two weeks ago from the American Hospital Association (AHA), which represents 5,000 hospitals and doctors. AHA contends it will cost at least $22 billion to satisfy the privacy rules, which require an organization to ensure patient data is kept confidential and seen only by authorized personnel — even after it has been transferred to an outside organization.

HHS has had no official response to what is a last-ditch effort to derail the toughest security demands Washington

See **HIPAA**, page 72

Start-ups to add zip to Web

BY APRIL JACOBS

Start-ups FineGround Networks and Andes Networks this week are expected to launch Web acceleration products designed to help users speed content delivery and secure transactions on e-commerce sites.

While the companies' products differ — FineGround is aimed at content delivery and Andes is aimed at secure transactions — both are trying to solve the problem of bottlenecks on Web and e-commerce sites. FineGround says it is taking a unique approach to speeding content delivery by addressing dynamic content,

See **Start-ups**, page 16

Ironclad e-mail delivery on the way

BY CAROLYN DUFFY MARSAN

The Internet engineering community is wrapping up work on a new technique for tracking e-mail delivery, an important milestone as the Internet migrates from best-effort delivery of messages to the accountability available with low-tech alternatives such as FedEx.

Under development for five years, the Message Tracking Query Protocol lets a message sender determine the path a particular message has taken through the Internet and the status of the message. A complement to message receipts, message tracking chronicles undelivered e-mail.

Engineers from AT&T Labs, Sendmail and MessagingDirect designed the message tracking protocol through a working group of the Internet Engineering Task Force (IETF). These and other e-mail vendors are expected to ship products that

See **Tracking**, page 71

"When you think about bank statements and bills being delivered by e-mail, message tracking becomes very important."

Eric Allman, CTO, Sendmail

Newspaper $5.00

"Well, it looked like a friendly horse."

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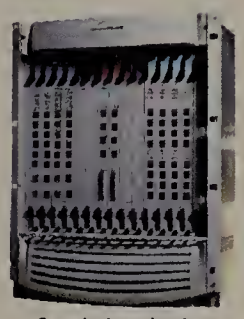
FEBRUARY 12, 2001



Security breaches in ArrowPoint switches?

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Infrastructure

New FCC chief big on deregulation.

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Carriers & ISPs

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SPECIAL FOCUS: NET SECURITY SERVICES. *Some think they have no choice but to hand over security management reins.* ***Page 36.***

Iomega's David Woffinden on IT centralization.

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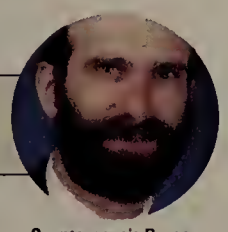

Counterpane's Bruce Schneier discusses net security.

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Technology Update

ERIK PETERSON, IT MANAGER AT SOMIX TECHNOLOGIES, WAITED SIX WEEKS FOR A FAILED CABLE MODEM TO BE FIXED.

Feature: Broadband bottleneck

The lack of trained installers is creating problems for customers who want DSL or cable modems. *Page 51*

Feature: Order in the court

A New Hampshire courthouse turns to videoconferencing to cut travel costs. *Page 49*

NetworkWorld REVIEW

Review: Symantec's Desktop Firewall is ready for the enterprise. ***Page 53.***

PHOTOS: KEVIN BRUSIE, JIM DANIELS

Management

Bringing IT under one roof: How Iomega met the challenges of centralizing network management head on. **Page 54.**

Editorial: Start-up wants to network Bluetooth wireless PANs. **Page 42.**

Kevin Fong: Investment opportunities in the year ahead. **Page 43.**

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Backspin: World domination and irrational gloom. **Page 74.**

'Net Buzz: Learning a lesson in the power of e-mail newsletters. **Page 74.**

CONTACT US Network World, 118 Turnpike Road, Southborough, MA 01772; **Phone:** (508) 460-3333; **Fax:** (508) 490-6438; E-mail: nwnews@nww.com;
CIRCULATION: Phone: (508) 490-6444; Fax: (508) 490-6400; E-mail: nwcirc@nww.com; **STAFF:** See the masthead on page 10 for more contact information. **REPRINTS:** (717) 399-1900

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REVIEWS

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NEWS

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COONEY'S CORNER

The best of the NetFlash daily newsletter

Complaints landing on deaf ears

It won't come as good news that Verizon last week said it would cut about 10,000 jobs this year. During the past two years, Verizon has paid about $5 million to $6 million per year in rebates to customers as a result of poor service. The company claimed the majority of complaints last year was due to the strike by Verizon workers last summer and poor weather. Many users in contact with *Network World* seem to be growing tired of the excuses, though. They claim their complaints seem to be going on deaf ears. Seems unlikely that with fewer people, the company will be any better at customer service than it is now. **DocFinder: 2950**

Top-level domain selections flawed, critics charge

The Internet Corporation for Assigned Names and Numbers came under attack during a congressional hearing last week for allegedly using an arbitrary, subjective and otherwise flawed process when it selected seven new top-level domains last November. **DocFinder: 2934**

ESystems set to release e-mail archiving software

With more than 275 million active corporate e-mail accounts, the need is greater than ever for companies to create policies to retain and delete e-mail, which can eventually become a legal liability or lifesaver. **DocFinder: 2935**

Satellite broadband to surge

While cable Internet and DSL installation has yet to take off in the consumer market, analysts predict satellite broadband connections will soar skyward over the next four years. **DocFinder: 2936**

–Michael Cooney, associate news editor

Sign up for this e-mail newsletter online. DocFinder: 3850

COLUMNISTS

Compendium

Now there's an idea

Fusion Executive Editor Adam Gaffin urges readers to try their hand at goofing on Bill Gates' latest promotional photo for big prizes, well, OK, random tchotchkes. **DocFinder: 2940**

View from The Edge

Making a mess of mergers

Edge Managing Editor David Rohde worries about ensuing customer service messes when the dust finally clears on CLEC mergers. **DocFinder: 2941**

Keeping Current

Praying for our pockets

Columnist Fred McClimans hopes that Alan Greenspan's rate cuts will keep us spending the network dollars. **DocFinder: 2942**

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NEWS BRIEFS, FEBRUARY 12, 2001

Cisco misses Wall Street mark

Cisco's quarterly financial report last week was the first in more than six years in which the firm missed Wall Street expectations. The company also warned that sales will not grow for the next six months. The bad news at the technology bellwether has been a drag on the network industry and the global economy. Cisco reported earnings of $1.33 billion, or 18 cents per share, on sales of $6.75 billion. Wall Street had been expecting 19 cents per share. Cisco was also expected to have sales of $7 billion to $7.2 billion. In more positive news, Cisco's component availability issues appear to be behind it. Lead times for affected products, such as the Catalyst 6500 LAN switch, are now down to four to five weeks, from eight to 12.

Pope mulls patron saint for . . . 'Net users?

What do you do when the computer is crashing, the network is down and the program you've been working on for months won't debug? Soon you may be able to seek divine intervention by praying to the patron saint of Internet users and computer programmers. Pope John Paul II is currently thinking over a 2-year-old proposal to name Saint Isidore of Seville to the patron saint position. Saint Isidore is believed to have written one of the first encyclopedias that included information about math, medicine, history and theology.

Make way for Windows XP

Microsoft has a new experience coming for end users: Windows XP. The company last week officially slapped that name on the forthcoming desktop version of Windows 2000, which had been code-named Whistler. Microsoft also said Office 10 would be called Office XP when it ships later this year.

According to Microsoft, XP "is short for experience, symbolizing the rich and extended user experiences Windows and Office can offer." The two XPs will be unveiled at The Experience Music Project in Seattle this week, where "Are You Experienced?" by Jimi Hendrix is certain to shake the walls. Ship dates remain in a purple haze. (For more on Windows 2000, see story, page 14.)

Armstrong, Ebbers sing same sad song

Incumbent local exchange carriers are making it near impossible for long-distance service providers to economically offer local services, says C. Michael Armstrong, AT&T CEO and chairman. Armstrong spoke at the National Press Club in Washington, D.C., last week to mark the fifth anniversary of the Telecommunications Act of 1996. "We are being pushed out of the market by the inflated wholesale prices the Bells are charging," Armstrong said. "If nothing changes, we will be forced to shut down our local service in New York and Texas." Meanwhile, during a separate conference late last week, WorldCom CEO Bernie Ebbers agreed with Armstrong's comments, adding, "We will only enter local markets where we can make money, and that's becoming more difficult."

This time Vitts files for Chapter 11

The recent roller coaster ride of Manchester, N.H., DSL provider Vitts Networks took another downturn last week when Vitts filed for Chapter 11 bankruptcy protection. In late January, Vitts, which provides DSL and enterprise networking services to about 20,000 customers in New England, began laying off employees and announced it would shut down its operations by the end of February. One week later the company said it had found enough funding to let it continue operating into the near future and that it would seek further funding to stay in business. Vitts officials say filing for Chapter 11 will let the company continue providing service as it seeks that funding or a buyer.

Top-level domain process comes under fire

The Internet Corporation for Assigned Names and Numbers (ICANN) came under attack during a congressional hearing last Thursday for using an arbitrary and otherwise flawed process when it selected seven new top-level domains last November. Members of the House telecommunications subcommittee recommended that ICANN develop a fairer and more open process before it selects more top-level domains. It was unclear whether the subcommittee would try to reverse ICANN's decision.

"Our goal is to make sure that this is a fair and open process in every way, particularly for those that have qualified applications, so that they may, in fact, succeed," Rep. Fred Upton (R-Mich.) said. ICANN's board of directors selected: .aero, .biz, .coop, .info, .museum, .name and .pro.

New offerings aim to simplify security mgmt.

BY TIM GREENE

Two companies this week will introduce separate offerings designed to ease the management of security policies for remote computers.

Pilot Network Services of Alameda, Calif., is upgrading its Secure Road Warrior (SRW) VPN service so network administrators can add and drop VPN users via a Web interface. Separately, Zone Labs is introducing client/server software for centrally configuring and managing security software on remote PCs.

Both offerings are designed to make it easier for customers to change security parameters once and have them pushed automatically to remote machines, which previously would have required manual upgrades. Analysts say customers can anticipate seeing more of these types of products and services in the months ahead.

Among Pilot customers — which include 20th Century Fox, the American Stock Exchange and PeopleSoft — *Newsweek* magazine is subscribing to the new SRW+ offering.

"This makes it much easier to add and drop users," says Len Carella, the publication's director of IT. *Newsweek* uses Pilot's current offering for 25 remote users and will quadruple that number when it upgrades to SRW+.

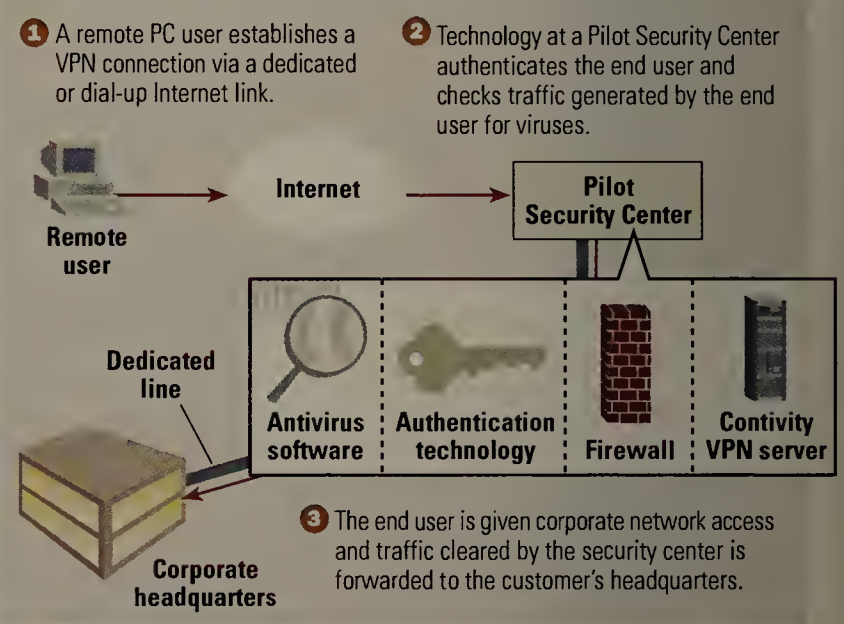
If Carella wanted to add or delete rights of remote users in the past, he had to contact Pilot, which would assign a technician to make the change.

SRW+ supports an Internet VPN connection between each remote PC and a VPN

See **VPN**, page 71

How Pilot's managed VPN service flies

Pilot's Secure Road Warrior + offering ensures that only approved end users and clean traffic access the corporate network.



Vendors bolster storage appliances

BY DENI CONNOR

Network professionals should be able to more easily install and deploy storage in branch offices and departments of large companies with network-attached storage appliances that Dell Computer and Network Appliance are introducing this week.

The companies separately are expanding their NAS families with entry-level and midrange appliances that have capacities ranging from 60G bytes to 3 terabytes in size. Customers are increasingly installing NAS into departments, workgroups and branch offices that may not have full-time IT staff because NAS' easy deployment and manageability can cut administrative costs, says Dan Tanner, an analyst with Aberdeen Group.

The demand for increased storage capacity, faster systems and lower cost of ownership is driving the need for faster, less-complicated storage devices. Dataquest says although the enterprise segment of the NAS market is still the largest, workgroup/departmental NAS revenue will grow more quickly than either entry- or enterprise-level NAS during the next three years. Workgroup/departmental revenue will increase at least 130% from 1999 to 2004. On a unit-shipped basis, however, the number of entry-level appliances, which are easily and quickly installed in workgroup environments and small offices, will grow faster than departmental or enterprise-level NAS at 114% for the same period.

"The Dell PowerVault appliances are ideal to replace traditional NetWare and Windows NT file servers because of their size and durability," says Steve Duplessie, an analyst with Enterprise Storage Group. The Network Appliance boxes replace previous Network Appliance file servers.

The Dell 735N and 701N appliances work with Microsoft Common Internet File System, Unix's Network File System (NFS), Apple's AppleTalk Filing Protocol and Novell's NetWare Core Protocol files, as well as Linux, Sun Solaris, HTTP, HTML and WebDAV.

The boxes support Active Directory for management and can handle 60G bytes to more than 1.4 terabytes. The midrange 735N is also available with dual Pentium III processors for additional performance. Dell announced it increased the capacity of its present low-end PowerVault 705N from 120G to 240G bytes.

A Web-based utility residing on a network workstation provides local and remote administration for the Dell appliances. The appliances have 10/100M bit/sec Ethernet interfaces for attachment to the LAN. The 735N has hot-swappable power supplies and fans, as well as a battery backup to protect the RAID cache.

Dell's PowerVault 735N, with an upper capacity of 1.44 terabytes, is ideal for Windows NT and NetWare environments, analysts say.

Meanwhile, Network Appliance is replacing its current NAS appliances with faster and less-expensive boxes.

The Network Appliance F85 and F820 scale from 216G bytes to more than 3 terabytes and replace the F720 and the F760. A two-node cluster, the F820C scales to 6 terabytes. The F85 has external tape drive support and a 10/100/1000 Gigabit Ethernet connection. According to company claims, the F85 and F820 are 50% faster than the F720 and F760.

"We currently have [file servers] that are bogging down under their load, mostly due to high NFS operations," says Geoff Hardin, MIS Unix administrator for Dallas Semiconductor, who is looking to replace some of his company's Network Appliance file servers. "We have users that will wait until the last moment to run a batch of simulations that will pummel a [file server]. We are looking to the new filers also to double our disk space without increasing the existing footprint."

The faster F820 can expand to more than 3 terabytes and replaces the firm's F760, which could hold the same amount of data. Each filer also has a Fibre Channel port for backing up the appliance to a shared tape library on a storage-area network. A new version of the Data OnTap operating system for the F85 and F820 offers integrated virus-scanning capability.

The PowerVault 735N starts at $10,000; the dual-processor XP is $12,000. The PowerVault 705N starts at $4,300; the 701N is $1,400. All products are available immediately.

The Network Appliance F85 starts at $14,000; the F820 starts at $70,000; the clustered F820C starts at $195,000.

Dell: www.dell.com; Network Appliance: www.networkappliance.com

Verizon expands international telecom horizons

BY MICHAEL MARTIN

NEW YORK — One day after Sprint unveiled plans to build an international telecommunications network, Verizon weighed in with its own scheme to construct an overseas network to better serve the provider's multinational customers.

The network build will connect Verizon's U.S. network to major cities in Europe, Asia and Latin America. Verizon has some international links, connecting New York to Toronto, Hong Kong, Tokyo and Sydney, Australia, which will be part of the new network.

The first phase of the new network build, expected to be complete by the second quarter, will connect New York to London, Paris, Amsterdam, Brussels, Belgium, Frankfurt, Germany, and Milan, Italy.

Verizon will offer managed and unmanaged bandwidth services to its multinational customers, including wavelength, SONET, ATM, frame relay and IP. The provider will also resell Genuity Internet services such as Web hosting, and dedicated and dial-up access.

The first customers to have access to the new network will be those in New York. Verizon will add customers from other states once it has regulatory approval to offer long-distance services in those states.

Wiring the world

Verizon's global network will use Lucent optical and ATM gear to provide 1.6 terabit/sec of capacity by year-end.

SOURCE: VERIZON

"This isn't as much to attract new business to Verizon as it is to increase our presence with the customers we have," says Verizon spokesman Steve Marcus.

Marcus says multinational customers in Verizon territory spend on average only 15% of their telecommunications budget on Verizon services, and the provider wants that number to increase.

Robert Rosenberg, president of Insight Research, a telecommunications market research firm, says Verizon should be able to win a lot of international business from other carriers if it can provide competitive pricing and service quality. He adds, though, that it is unlikely any large multinational company would hand all its business to one carrier.

Verizon also said last week that it will cut 10,000 jobs and lower costs by reducing overtime and outside contract work. Verizon has about 260,000 employees worldwide.

The cuts shouldn't have any impact on Verizon service, Rosenberg says.

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Cisco Web switches found to have security cracks

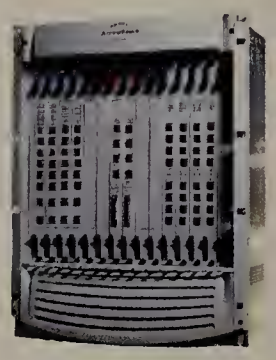
Switches vulnerable to denial-of-service attacks and can expose privileged data.

BY JIM DUFFY

SAN JOSE — Two vulnerabilities have cropped up in Cisco content switches that could make them susceptible to denial-of-service attacks and allow unauthorized users to view sensitive information.

The products are Cisco's Content Services Switches — the CSS 11050, CSS 11150 and CSS 11800 — which were obtained through the $6 billion acquisition of ArrowPoint Communications last year. Once access to the command line interface (CLI) of these products is granted, the switches can be forced into a temporary denial of service by "unprivileged" users and to reveal file names and file contents of data.

An unprivileged user is one who has access to the switch, and perhaps the switch's CLI, but does not have administrative authority. Cisco issued a field notice on its Web site two weeks ago alerting users to the problems.



Cisco's content switches have security glitches that can either disable them or enable access to privileged information.

Once unprivileged users gain command line access, certain commands can cause the switch to restart if the command file name is the maximum length of the input buffer. These commands can cause the switch to reboot and start a system check, which will prevent normal functioning of the switch for up to 5 minutes, the field notice states.

This vulnerability can be continuously reproduced to create a denial-of-service attack.

The second vulnerability can provide unauthorized access to important files such as the configuration files and directory structure information. It enables unprivileged users to gain information on the directory structure by requesting nonexistent file names and gain read access for files if the directory structure of the target files is known.

These vulnerabilities are minimized if access to the CLI is well-protected.

"Presumably, they'd be inadvertent attacks because you'd only give logins to employees," says Peter Spellman, CTO at iwant.com. "It all depends who you allow to access your switch. The only people who have access to our switch are our admin guys."

Cisco is offering free software upgrades on its Web site to eliminate the denial-of-service vulnerability. The file system information disclosure vulnerabilities are scheduled to be fixed.

Cisco recommends workarounds in the interim. One such workaround is to apply access control lists to restrict access to the Cisco content switch, as well as additional firewall or access lists to restrict connection to the management interface. Telnet service can also be disabled, but for many customers in a collocation environment this is not feasible, Cisco says.

These vulnerabilities were discovered by a security consulting firm during a customer security audit. Cisco says it is not aware of any malicious use of the vulnerabilities. ◪

Enterasys brings policy enforcement closer to users

BY PHIL HOCHMUTH

ROCHESTER, N.H. — Enterasys Networks this week will announce software aimed at simplifying the creation of user access and security policies while putting the enforcement of access rules on network access points.

The NetSight Policy Manager will let users with Enterasys' Matrix wiring closet switches push LAN security enforcement from back-end servers up to the network/client connection point in wiring closets, the company says. This can help improve security by controlling authentication at the switch level instead of deeper into the network at the server.

The software is intended to let network managers tie together server and application access rights as well as network quality of service and virtual LAN (VLAN) assignments according to business departments or predefined classes of users. It works in concert with Matrix switches, network directory servers and Remote Authentication Dial-In User Service (RADIUS) servers. These combined elements form what the company calls its User Personalized Network (UPN).

"Policy management is something that could be improved on our network," says James Labonte, network engineer for St. John's Hospital in Springfield, Ill., who is beta-testing the NetSight Policy Manager.

"Normally, we'd have to go port by port, down to the IP level of what an application is using to enforce policy," Labonte says. He anticipates that the new software will let him enforce policy at the switch level without having to spend time configuring his hardware.

According to the UPN model, when users log on, the access request is processed by back-end RADIUS and directory servers such as Novell Directory Services or Microsoft Active Directory. If access is granted, the switch interprets the user's network identity and job role from the back-end directory and applies business policies to the user, interpreted as what VLAN the user is part of, what network resources the user can reach and at what rate. The switch is made aware of the policies from the Windows-based NetSight Policy Manager.

Controlling access at the wiring closet is key for reducing internal security breaches, says Steve Pettit, technical director at Enterasys.

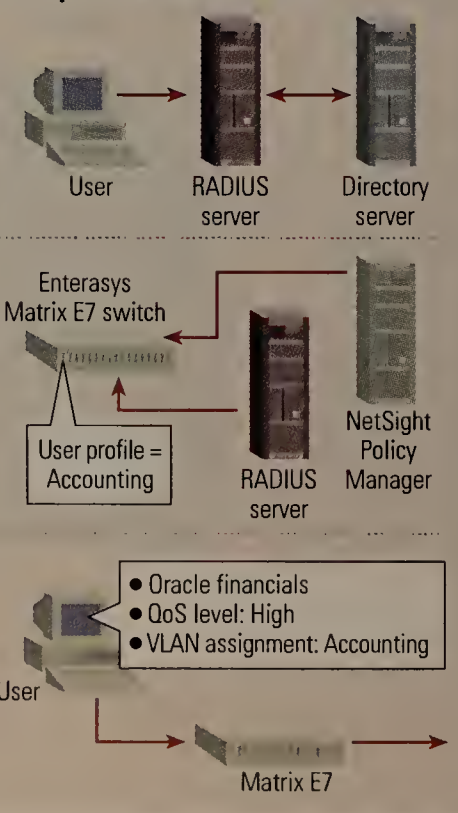
In networks where access depends solely on server logons, "someone trying to gain access to [enterprise resources] can still talk on the network even if they fail to authenticate to a server," Pettit says. "They can still use printers and get on the Internet and send packets over the network."

NetSight Policy Manager is available and costs $5,000. Enterasys Matrix E7 and E5 wiring closet switches are also available and cost about $20,000 and $11,000, respectively.

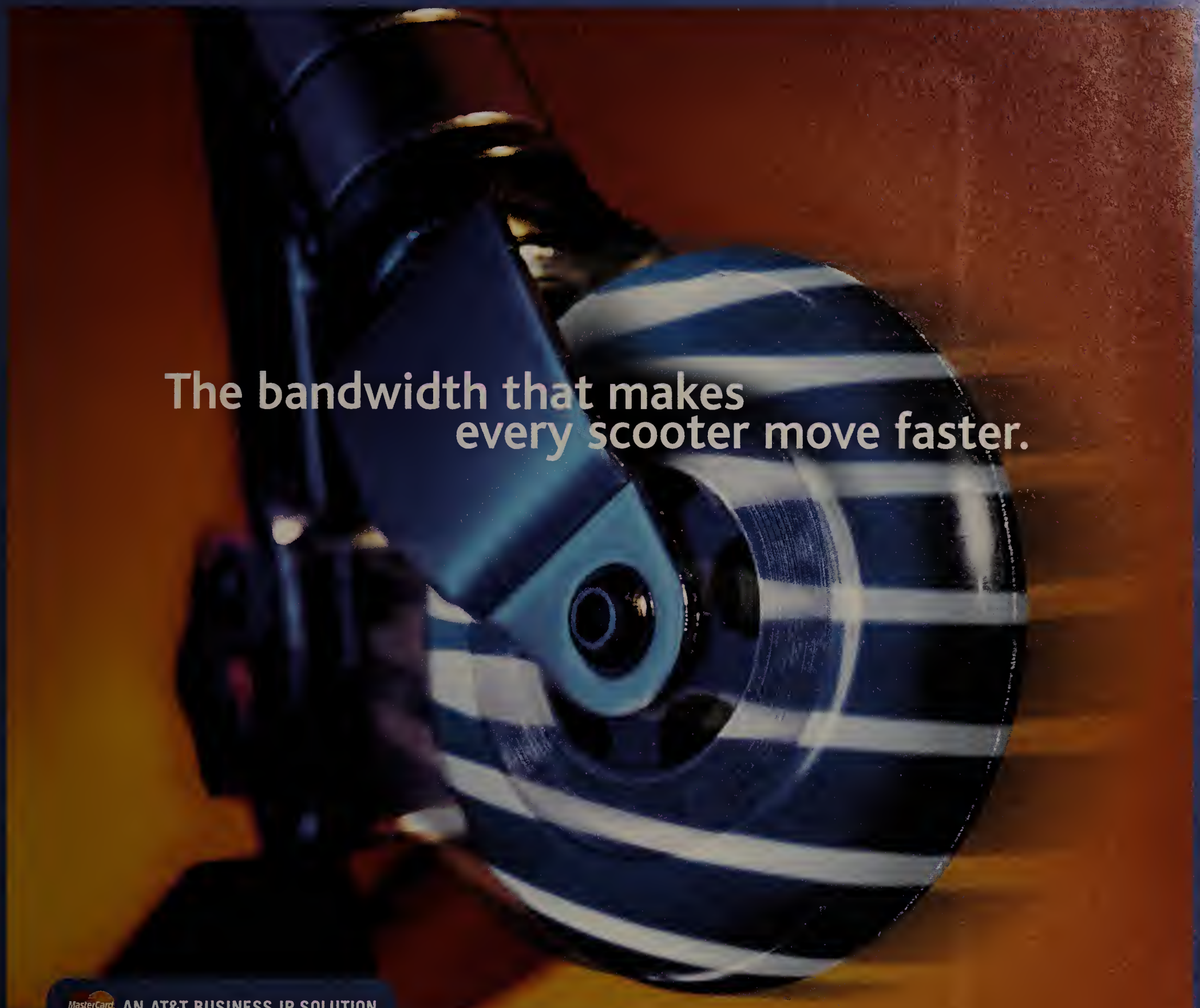
Enterasys Networks: www.enterasys.com

Business rules on the network

Enterasys' NetSight Policy Manager is key to its User Personalized Network, where network resources and traffic prioritization are mapped to specific business rules.



Cisco upgrades IP videoconferencing gear. Page 17.



MasterCard AN AT&T BUSINESS IP SOLUTION

VIRTUAL PRIVATE NETWORKS: When MasterCard launched the payment industry's first Virtual Private Network (VPN) three years ago, it turned to AT&T for an IP VPN with bandwidth on demand. The flexible system now operates in 61 countries, allowing MasterCard members to expand network capacity during peak-season loads. No matter what size your business, when transactions soar, AT&T keeps them moving right along.

AT&T Business
Innovative Networks. Innovative Thinking.℠

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Path to Win 2000 turning into long road for many

On server software's first anniversary, complexities of upgrading force many users to take cautious migration approach.

BY JOHN FONTANA

REDMOND, WASH. — It's been a year since Microsoft shipped Windows 2000, and many IT executives are now facing the sobering reality that the server operating system will take longer to deploy and cost more to roll out than anticipated.

IT executives are responding by lengthening migration schedules, in some cases even doubling the months or years slotted to get the software fully deployed. Many users are initially shunning Active Directory and running Win 2000 as part of Windows NT 4 domains.

Meanwhile, Microsoft is creating more confusion by touting Windows XP, the next version of Win 2000, and .Net, a strategy for delivering software over the Internet, even before Win 2000 adoption has reached critical mass.

"Not one of even my most aggressive customers has completely converted to Windows 2000," says John Kretz, president of Enlightened Point Consulting. "People are slowing down migrations because they don't see the cost benefit."

Win 2000's Active Directory is not only complex technology, but also requires navigation of corporate politics to set it up. Therefore, companies are putting it on the back burner. Without the end-user management gains that the directory promises, organizations don't see obvious cost savings and other benefits of Win 2000, especially if current NT environments are stable. Other major sticking points include staff training and replacing hardware to handle the power-hungry operating system.

"We have switched to taking a back-seat approach," says Michael Sherwood, director of IT for the city of Oceanside, Calif. "At this point, we are not comfortable with migrating from NT domains to Active Directory." He says Microsoft understated the complexity of the migration.

Oceanside planned to have 25% of its 115 servers migrated by now, but has moved only one, which is part of an NT 4 domain. Sherwood now says his migration will take three years.

He says he could pay consultants to set up Active Directory, but still needs to get his staff trained to run the directory once it's in place.

"Our IT budget isn't growing, and we'd rather spend on other infrastructure," Sherwood says. "We don't see dramatic reasons to move, such as cost savings, reliability and administrative gains."

Jeff Allred, manager of network services for the Duke University Cancer Center, echoes Sherwood's sentiments.

"I've doubled my deployment cycle, and I'm not excited about recreating my directory structure from NT to Active Directory," he says. "I may go to a mixed environment with Win 2000 running in an NT domain."

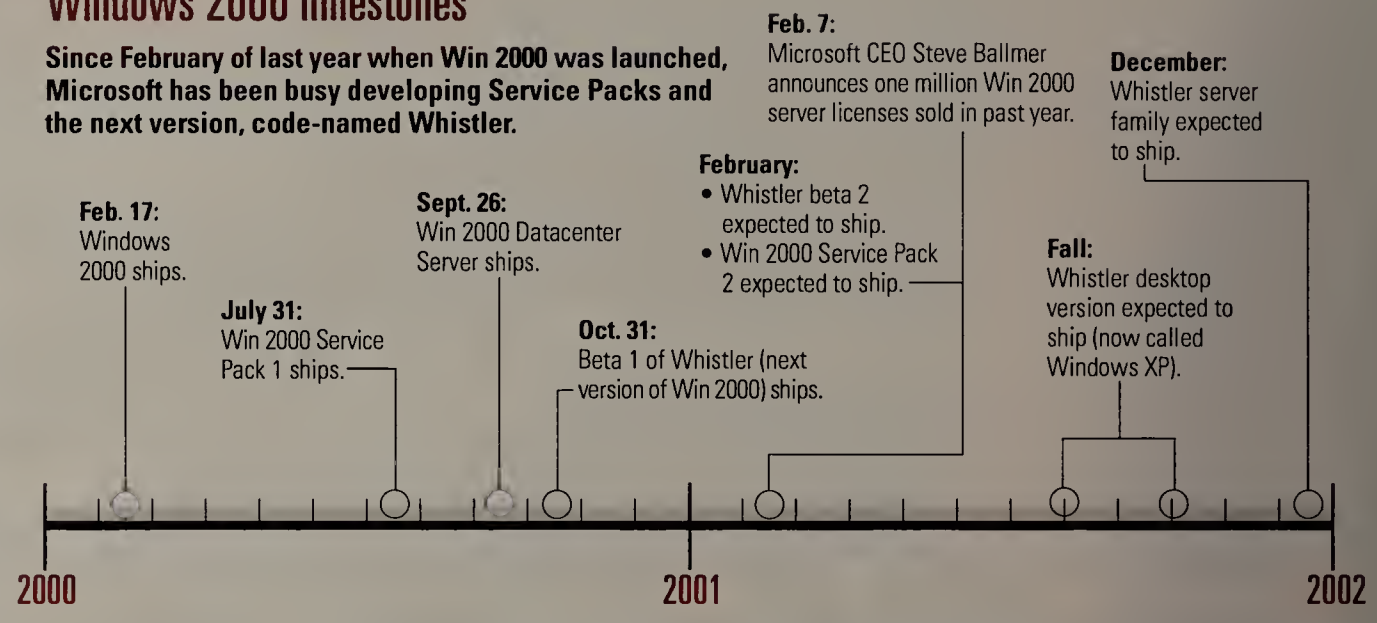
Allred says his rollout is delayed until this summer and will take a year.

The bottom line is that migrations to Win 2000 this year won't be as great as anticipated. Gartner Group says only about 3% of the NT server installed base was converted to Win 2000 last year, and Gartner is revising its conversion estimates for this year. The prediction was 45% to 50%, but now

See **Win 2000**, page 72

Windows 2000 milestones

Since February of last year when Win 2000 was launched, Microsoft has been busy developing Service Packs and the next version, code-named Whistler.



Correction

The review "Putting 802.11b to the test" (Feb. 5, page 50) contained an error. Pricing for the Enterasys RoamAbout Access Point 2000 with four access points and 40 network interface cards is $11,595.

SilverBack gets into apps management

InfoCare service to monitor Windows NT, Unix servers.

BY DENISE DUBIE

BILLERICA, MASS. — SilverBack Technologies this week will expand beyond network management services into systems and applications management, a move that sets the company's offerings apart from more specialized services.

Customers can now use SilverBack's InfoCare service to monitor not just the performance of routers, switches and other network components, but also servers, such as those running Windows NT or Unix, and applications, including those from Oracle.

SilverBack is one of about 80 registered members of the Management Service Provider Association, of which it is a founder.

"Some [management service providers] specialize in Layer 2 switches; some specialize in networks," says John McConnell, president of McConnell Associates. "But SilverBack can do the work of collecting information from all over the enterprise and make less work for network managers."

InfoCare 2.5, aimed at small and midsize businesses, now also includes access control list (ACL) options and Secure Sockets Layer encryption capabilities that safeguard the connection between the customer and management data SilverBack collects.

SilverBack's InfoCare can now also monitor the performance of the servers and applications.

The company provides its services by locating an appliance at the customer site that feeds fault, performance, security and other management information via a VPN back to a SilverBack data center, where data analysis is performed. Customers can access reports on that data via a Web portal, plus request services, such as software update distributions.

Customers such as Jeff Nelson of Cleveland Motion Controls says using SilverBack services is less expensive and complicated than rolling out an enterprise management platform from the likes of Hewlett-Packard and Aprisma.

The new systems and application management capabilities make SilverBack's offering even more competitive with management frameworks, the net manager says.

"We've had problems with our [enterprise resource management] applications working with Oracle, but with InfoCare, it's pretty conclusive — it's a client/server problem and not a network bandwidth problem," he says.

SilverBack has 26 customers, some under contract, some in beta testing and some in the proof-of-concept stage.

InfoCare 2.5, depending on the size of the network being managed, costs between $2,000 to $4,000 per month. Installation fee ranges from $1,000 to $3,000.

SilverBack: www.silverbacktech.com

Wireless LAN holes exposed

BY JOHN COX

Wireless LAN security holes identified in a new report by computer scientists are real but not easily exploited, according to product vendors.

University of California researchers report that several weaknesses in the Wired Equivalent Privacy (WEP) encryption algorithm leave 802.11 wireless LANs vulnerable to several kinds of sophisticated decryption attacks. The flaws let a laptop user with a wireless PC LAN card eavesdrop on transmissions and decipher key parts of LAN packets using statistical analysis. The same weaknesses can then be used to create malicious packets and send them over the LAN.

The report is available via the Web at www.isaac.cs.berkeley.edu/isaac/wepfaq.html.

But vendors and users say the WEP weaknesses are well-known and that the IEEE 802.11 group is drafting an improved version of WEP. In any case, they say there are products available that can provide layers of protection.

Cisco last month released its Aironet 350 series wireless LAN products with a new security framework that also eliminates WEP, changes the encryption keys with each session and authenticates users based on the Remote Access Dial-In User Service protocol.

"The report exaggerated the degree of risk," says John Drewry, a business development executive at 3Com, which also has released technology to protect against wireless LAN attacks. "These are very sophisticated attacks and they are not easy to systematize and then redistribute by posting them on Web sites."

There are changes a company can make to its wireless LAN and net security system (such as periodically changing the cryptographic keys) that would force attackers to begin their break-in all over again.

The researchers acknowledge the difficulty in decoding 2.4-GHz digital signals and that reverse-engineering the firmware in 802.11 LAN cards takes a "significant time investment."

But, they write, "our analysis suggests that all of these attacks are practical to mount using only inexpensive off-the-shelf equipment." ◪

HTML E-MAIL OPEN TO 'WIRETAPS'

An Internet privacy group warned last week that HTML e-mail can be rigged so that the sender can see whatever recipients write when forwarding the message to others.

This capability, likened by The Privacy Foundation to a wiretap, affects HTML e-mail programs that run JavaScript, a widely used scripting language for Web pages. These programs include Microsoft Outlook 2000, Outlook Express 5.0 and Netscape Messenger 6.0.

Users can protect themselves by shutting off JavaScript in their e-mail readers. But the embedded JavaScript "wiretap" in a message can still work if the message is forwarded to someone who has JavaScript turned on.

Richard Smith, CTO for the Denver privacy group, uncovered the vulnerability while conducting Web research. He credits programmer Carl Voth with first documenting the ability of JavaScript to intercept e-mail text in 1998.

The group has called for Microsoft and others to rework their programs so that JavaScript is off unless a user turns it on.

The complete report is available at www.privacyfoundation.org/advisories/advEmailWiretap.html.

— John Cox

Start-ups,
continued from page 1

leaving the established cache vendors to speed static requests. Additionally, FineGround's product requires users to send less data over the Internet, reducing bandwidth costs. For its part, Andes hopes its approach to secure transaction processing, which eliminates many of the steps traditional products go through to maintain connections, can give users an edge.

Both companies are backed by industry veterans. Andes Chairman Glen Anderson was co-architect of Sun's 64-bit SPARC Version 9 Reference specification, while CTO Guillermo Maturana served as co-architect for Sun's Viking and Spitfire chips. Maturana also founded Radiant Design Systems and served as chief scientist at Synopsis. FineGround CEO B. Natarajan Kausik served as entrepreneur-in-residence at New Enterprise Associates and founded Arcot Systems, a Web security company. He has also worked at Hewlett-Packard, Carnegie-Mellon, Stanford University and the University of Illinois.

Kausik says the company's first software product, Condenser, runs on a Linux-based appliance server, and will let companies speed dynamic content delivery to their customers because it takes the burden of constructing and serving up fully assembled pages off Web servers.

FineGround's Condenser appliance, which sits in front of a Web server farm and behind the network firewall, helps surfers access a Web or e-commerce site's main page and then move on to specific requests for content on the site. From that point, content is often generated on the fly. The on-the-fly content, often referred to as dynamic content, creates most of the bottlenecks that leave potential shoppers twiddling their thumbs while servers work to construct and deliver those pages. FineGround's software looks at a user's request and sends off only the portion of the content that is different or dynamic.

Web and e-commerce site owners can also save on bandwidth costs because instead of sending an entirely new page, they only send the envelope with the new content. The company claims its Condenser can increase the speed of content delivery by 20 times and reduce bandwidth usage 40 times.

Traditional cache offerings from Sun, CacheFlow, Inktomi and Novell have tried to offset some of that delay by offering a way to store frequently requested content and send it off without taxing Web servers. But caching doesn't address dynamic content requests, which still burden Web servers, FineGround executives say.

For its part, Andes plans to offer a product — a combination of hardware and software — that removes many of the steps most Web systems go through to process secure transactions. In essence, the company says it eliminates much of the TCP/IP stack overhead used by today's conventional proxy server method of retaining connections between clients and hosts.

Andes proposes to conduct lightweight sessions that eliminate some of the delays associated with Secure Sockets Layer (SSL) transaction processing.

Andes says its NonStop SSL product can handle 2,500 to five million new secure connections per second, compared with 600 to 20,000 from other products. The company's product is designed to sit in front of Web servers and can work with existing cache devices.

Research from consultancy Networkshop indicates SSL connections — such as those formed when a surfer provides private information — are as much as 50 times slower than regular HTTP connections associated with regular content.

Marry that slow connection rate with a rising SSL transaction rate — IDC, for example, expects it to account for 33% of all traffic by 2004 — and Web and e-commerce hosters need to find faster, cheaper ways to accommodate it.

Andes will compete with a number of offerings from F5, Phobos, Intel, Alteon and Ingrian, which mostly offer cards.

Andes is expected to announce product delivery dates this spring. FineGround's Condenser is available now starting at $50,000.

FineGround: www.fineground.com; Andes: www.andesnetworks.com

PROFILES: FINEGROUND NETWORKS

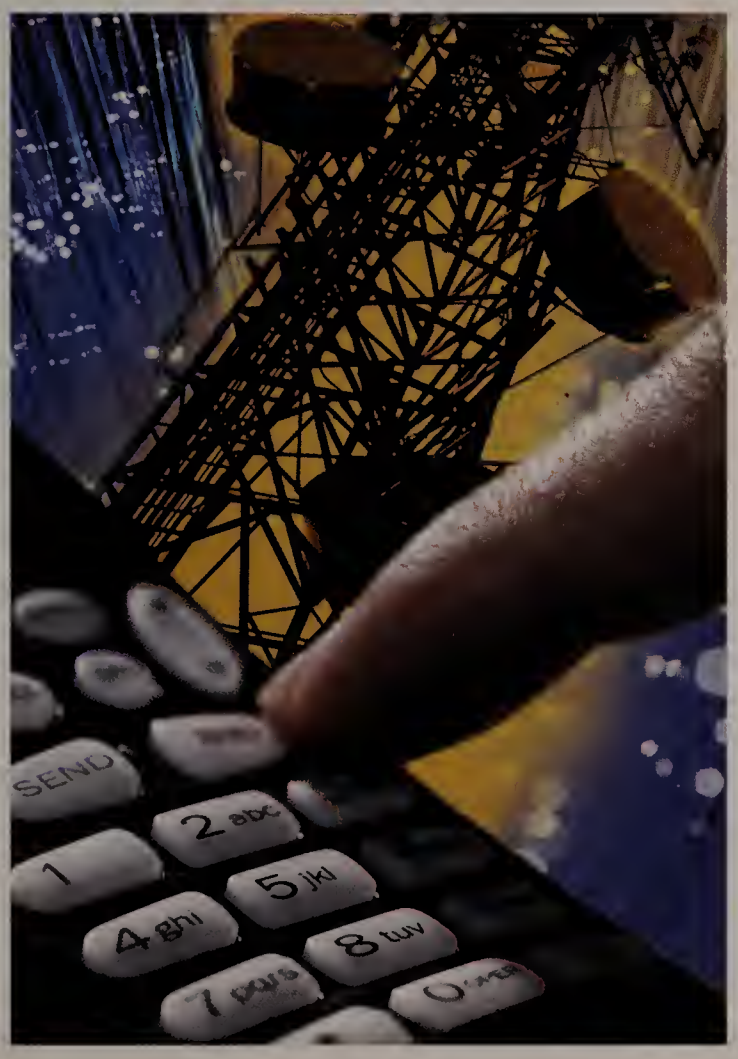
Location:	Campbell, Calif.
Founded:	June 2000
Launch date:	Feb. 12, 2001
Primary business:	Web acceleration software/hardware
CEO:	B. Natarajan Kausik
Financing:	First round, $5 million — investors include Sun, Pack Rim Venture Partners
Employees:	N/A
Customers:	Charles Schwab

ANDES NETWORKS

Location:	Mountain View, Calif.
Founded:	(As BeeLine) March 9, 2000
Launch date:	Feb. 12, 2001
Primary business:	Web acceleration software/hardware
CEO:	Paul Gordon
Financing:	First round, $3.5 million; second round, $22 million — investors include New Enterprise Associates
Employees:	45
Customers:	None announced yet

MEETING THE MESSAGING CHALLENGE

UNIFYING COMMUNICATIONS FOR E-BUSINESS



FOR TODAY'S ENTERPRISES, this is truly a new e-business millennium, where national and international boundaries are losing their meaning, and workers—through high-speed data connections—can stay in touch anytime, and from any location. But as much as road warriors and remote workers rely on broadband and wireless technologies to help them do their jobs, they are now asking IT to help them cope with their wily e-mail, voice mail, phone and fax configurations.

To unite their scattered workforces, many CIOs turn their messaging services over to network service providers (NSPs), which have the means to support large, disparate and fast-growing enterprises. And many of the NSPs are, in turn, trying to deliver what they call "unified messaging"—third-party solutions that allow their customers to send and receive e-mail, voice mail and fax messages from any communications device, anywhere in the world.

Road warriors are especially keen on unified messaging (UM) solutions.

Continued on page S2

UNISYS

Continued from previous page

The Boston-based Yankee Group reported that in 1999, 24 percent of wireless subscribers said they'd like the option of having their e-mail read to them over the phone, and 35 percent wanted consolidated, single-number telephone service. And road warriors called for UM in the greatest numbers: 70 percent of those who spend six days or more traveling each month ask for UM functionality, according to the same report.

Drew Kraus, an analyst with San Jose, Calif.-based Dataquest, part of the GartnerGroup, agrees with these findings. "Unified messaging has the greatest appeal for road warriors," he says. "Your sales force, field service people and traveling executives need access to all kinds of information, and they want to access that data through a single interface, whether it is on a notebook PC in their hotel room, or on a wireless phone at the airport."

LONG-TERM MESSAGING NEEDS

Analysts draw stark distinctions between the different UM solutions that NSPs offer. To avoid making the wrong choice, they say, IT decision-makers should first look at their organizations' long-term overall messaging needs. "You have to start by asking yourself, simply, 'Do I need it?'" explains Kraus.

By balancing per-user costs against projected gains in productivity and promised savings, CIOs can choose between two kinds of UM offerings: those that are effectively standalone solutions, or those that permit incremental change.

Some vendors' UM solutions insist on the wholesale replacement of legacy voice mail and e-mail messaging systems. But this rigid, all-or-nothing option can force IT departments to hold off on UM until their voice mail systems are completely obsolete.

Standalone solutions can also erode UM's potential for cost reduction and increased efficiency. "If a vendor insists that clients use their e-mail and hardware exclusively, then UM can become a costly proposition," says Larry Srader, a vice president at Unisys Corp., an e-business technology company based in Blue Bell, Pa., that builds large-scale messaging systems for NSPs. Unisys' own UM solution, *Universal Messaging*, consists of bundled feature packages, or modules, that can be tailored to the needs of different groups of subscribers.

Unisys' *Universal Messaging* adapts well to existing communications infrastructures and interfaces. "Users are more likely to embrace gradual steps toward UM functionality," says Megan Gurley, an analyst at the Yankee Group. "If you can use a [UM] interface that looks like your current interface, your users are going to adopt it more readily."

Universal Messaging from Unisys also accommodates divergent worker skill levels within an organization. Its modular architecture allows companies to introduce different levels of service to users with different levels of sophistication.

With *Universal Messaging*, users and administrators can organize messages and add, modify and delete user accounts, all through one Web interface.

In addition, CIOs can use *Universal Messaging's* modular, incremental approach to UM to target only those individuals or user groups that require improved messaging functionality. As one report from GartnerGroup, Stamford, Conn., puts it: "Even if there is no felt need in the enterprise as a whole, a given department (for example, sales) or a single user (for example, the president) may have a disproportionately high requirement for unified messaging."

Continued on page S4

Unisys Reduces the Risks of UM Implementation

Even as they ask for more messaging features, users are not willing to suffer any failures in the performance and stability of their current systems. GartnerGroup says that users already expect 95 percent of their e-mail and voice mail messages to be delivered within 15 minutes worldwide, both within and between enterprises. Gartner also rates reliability among its most important criteria for unified messaging (UM) solutions. Today's voice mail systems, the research firm says, can achieve near-perfect reliability through redundant CPU and file systems, redundant power supplies, hot-plug cards (which can be replaced while a system stays online), plus online maintenance and port test diagnostic utilities that ensure the quality and integrity of every line.

E-businesses are banking on UM solutions that can work well with today's voice mail networks. "Your [UM] system is going to be with you for a number of years," notes Drew Kraus, an analyst with Gartner's Dataquest organization, "and it will have to evolve along with your communications strategy."

E-mail server software can also make trouble for new UM set-ups. Software that must support UM functions for voice mail servers, directory services and a common message store can threaten enterprises by creating multiple points of failure. In addition to system availability issues, deployment of UM systems raises security, scalability, manageability, interoperability and networking concerns because often these customized solutions require the seamless integration of multiple interfaces, hardware platforms and operating systems.

PROVEN COMMUNICATIONS PLATFORM

Unisys has greatly reduced these risks of deployment by building *Universal Messaging* on Unisys' proven and robust Communication Application Platform (CAP). Of the over 90 million voice mailboxes currently supported, the vast majority are consumer subscribers; however, Unisys anticipates that more and more large enterprises will eventually take advantage of their robust UM solution by contracting for it through local service providers. Unisys provides over 100 of the world's telcos (including nine of the 10 largest) with highly reliable voice/fax messaging systems based on the CAP. For example, one European customer reported zero unplanned downtime during the past 12 months. Other large Unisys customers recorded less than an hour of downtime in the past year. In addition to a highly reliable and scalable messaging platform, Unisys delivers world-class systems integration services and support to ensure that every deployment exceeds customer expectations.

THE POWER OF *UNIVERSAL MESSAGING*

Universal Messaging's fully customizable Web interface gives users access to any POP3 or IMAP4 standard-compliant e-mail server, while its powerful voice servers deliver steady dial-tone service to voice mail users. Users can access and generate e-mails, faxes and voice messages all from a single communication device interface.

Also, *Universal Messaging* is virtually device-independent. Subscribers can use their telephones to direct faxes and e-mail messages to printers for hardcopy output. They can also use phones to access information about an e-mail message, such as date, time, subject and sender identity. And with the system's text-to-speech capability, *Universal Messaging* can read e-mail messages to users over the phone. *Universal Messaging* also supports WAP, allowing a user to manage e-mail messages from a mobile phone with a mini-browser. However, Yankee Group analyst Megan Gurley believes that users will continue to use their PCs as often as their phones to check messages. "And PDA usage will increase, too," she says, "as more people add wireless modems and multi-modal access devices to their portable devices."

Companies must gauge their growth potentials when choosing a UM solution through their NSP. Fast growers, global organizations and buyout candidates can quickly exhaust small-scale UM systems.

Continued from page S2

REALITY CHECK: SCALABILITY

Companies must gauge their growth potentials when choosing a UM solution through their NSP. Fast growers, global organizations and buyout candidates can quickly exhaust small-scale UM systems. And not all solutions can provide the high levels of security and control required by large enterprises. "In many cases, the issue is whether an [NSP] can get multiple services working simultaneously and in sync," Dataquest's Kraus says. "And that may take a service that is used to working with larger systems." He also notes that many providers can only point to one or two large-scale implementations, "but most have been smaller."

With carrier-class scale services, companies can protect their legacy messaging systems, while expanding services for their mobile and remote workers. Unisys bases its *Universal Messaging* solution on the company's *Voice/Fax Messaging* application, which has performed reliably in many environments with more than 10 million mailboxes. In fact, over 100 NSPs in 40 countries are using the *Voice/Fax Messaging* solution.

Unisys has heavily invested in R&D to ensure that the *Universal Messaging* solution scales to the same levels of support it achieved with *Voice/Fax Messaging*. Indeed, according to Unisys' Srader, "we have already shown our ability to scale our services to serve global customers with millions of mailboxes," he says. "Now, through *Universal Messaging*, we can do even more for them at the same level."

AN OPEN SOLUTION FOR AN OPEN WORLD

Universal Messaging supports a slew of wireless and Internet-related standards, such as POP3, ATM, IMAP4, TCIP, VPIM and LDAP. "Such broad support is becoming increasingly important for e-businesses," says Dennis Perkinson, *Universal Messaging* program manager at Unisys. "The bottom line is, the more your UM solution can support these protocols, the less likely it is that you'll have to throw out your current systems."

By putting support for open standards at the heart of its UM product, Srader says, "we've built an environment within the IP infrastructure that we can customize to our clients' legacy systems." *Universal Messaging's* open architecture allows for independent growth and scalability of separate message stores; users experience minimal impact on latency speed, synchronicity and functionality.

Universal Messaging also seamlessly integrates Unisys' *Voice/Fax Messaging* system with any POP3/IMAP4 standard-compliant e-mail servers and any SAPI-compliant text-to-speech engines, making it the most flexible and scalable UM solution currently available worldwide today. *Universal Messaging* not only offers a complete set of industry-standard UM features, it also provides compatibility with Wireless Application Protocol (WAP)-enabled mini-browser phones and other next-generation technologies.

ANSWERING THE CALL

By supporting new protocols and easing the growing pains of expanding enterprises, NSPs that offer Unisys' *Universal Messaging* are answering IT's call for realistic and rapidly deployable UM solutions. Road warriors and remote workers can get new services ahead of their office-bound counterparts, and IT can reduce messaging administration costs and create better connections between new and old systems—an essential asset for seamless messaging between any two work locations. And *Universal Messaging's* modular design easily joins with legacy voice mail networks, so enterprises can embrace change as quickly as it comes.

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Briefs

Compaq will release "hyper-dense" servers less than one server-unit (1.75 inches) high this year, a company executive said last week.

The servers will be optimized to reduce ancillary costs for maintenance and power, Compaq said, but did not provide specifics as to how that will be done.

Microprocessor companies such as Transmeta and Intel plan to aggressively push low-power chips into the server market this year. The low-wattage chips are designed to save space and power.

Four companies are planning releases of Transmeta's Crusoe-powered servers — RLX Technologies, FiberCycle Networks, Amphus and Rebel.com.

Compaq: www.compaq.com

Enterasys Networks last week announced new management software intended to reduce the manual configuration involved in deploying an IP Security VPN.

Enterasys' EZ-IPSec lets network professionals set up a standard VPN security profile that is assumed by remote users when they connect to the VPN.

This eliminates the need for network professionals to manually configure a myriad of network settings between the client and the VPN gateway for user access.

The software works with the company's Aurorean remote access and point-to-point VPN gateway devices (which Enterasys recently acquired from VPN start-up Indus River).

The software will come with all Enterasys VPN gateways at no extra cost.

Enterasys Networks: www.enterasys.com

3Com bolsters NBX VoIP system

BY PHIL HOCHMUTH

This week 3Com will introduce a new version of its IP PBX with five times the user capacity of its current NBX 100 LAN telephony box. Also on tap are new NBX handsets that allow users to make calls by beaming phone numbers from a Palm device to the phone.

The latest release of 3Com's NBX LAN telephony system, the SuperStack 3 NBX, is targeted at organizations with up to 750 users looking to replace a midsize PBX or upgrade from previous NBX devices.

ChannelWave Software, a developer of partner relationship management software in Cambridge, Mass., has used the NBX for several years and has been beta testing the SuperStack NBX. According to MIS Director Stephen Douglas, the new box's higher scalability was exactly what he needed.

"We were about to outgrow the smaller chassis," Douglas says, adding that his company's quick growth pushed the 150-user limit of his NBX 100.

By tying two NBXs together, Douglas was able to support the 300 employees now on the system, but this had its limitations, such as the inability to transfer voice mail to users across the two boxes.

"One of the big pluses of the new box is that I've got everybody on the same system," he says.

The new box can scale up to 750 attached devices and support 360 outside lines. The SuperStack NBX includes a new internal H.323 gateway for communicating with other voice-over-IP gateway devices across a WAN and auto-attendant software. The box supports twice as much voice mail (400 hours) as the NBX 100.

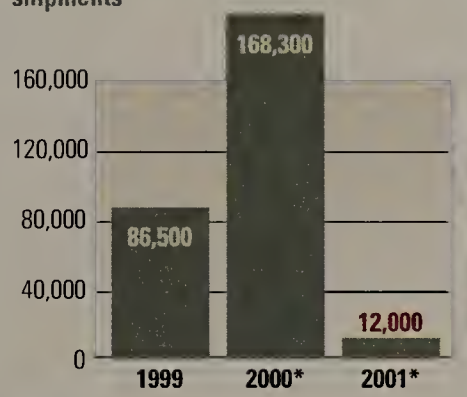
3Com will also introduce new NBX 2102 LAN phones that include two 10/100M bit/sec switch ports for connecting a PC to a LAN through the phone. Previous 3Com phones had two-port hubs for workstation connectivity. Systems with 3Com's SuperStack 3 NBX and NBX 2102 phones cost $600 and $800 per user. Both products are available now.

3Com: www.3com.com/solutions/enterprise/voicesolutions/index.html

IP phone hubbub

Many LAN telephones connect workstations to the network through a two-port hub in the phone. 3Com is one of many vendors replacing this technology with in-phone switch ports, which eliminate bandwidth contention between interconnected PCs and phones.

Worldwide hub-based LAN telephone shipments



*Projected

SOURCE: IOC

Cisco upgrades IP videoconferencing gear

BY JIM DUFFY

SAN JOSE — Cisco has unveiled IP videoconferencing products that let users conduct videoconferences with up to 400 simultaneous participants.

The IP/VC 3540 Videoconferencing Series products are resold by Cisco under an OEM arrangement with RADVision. The gear lets companies combine several separate videoconferencing products into one system and establish large-scale conferencing sessions (see related story, page 49).

The 3540 system features a four-slot chassis that can be configured with multipoint control unit (MCU), gateway, and application and data conferencing server modules.

The MCU module combines audio and videostreams to create conferences with three or more participants. A single MCU module can support up to 100 users in a conference or 100 users in multiple conferences simultaneously, Cisco says.

Up to four MCU modules can be combined in a single 3540 chassis for support of up to 400 participants. The previous limit with Cisco's earlier-generation IP MCU was 15.

Analysts say the platform is aimed at more sophisticated users than past Cisco videoconferencing offerings. It will compete with offerings from Lucent and Polycom, Cisco officials say.

"This platform is very well-suited to a new set of customers that need a higher density, a higher degree of management and administration capabilities," says Christine Perey, president of Perey Research and Consulting. "It's fundamentally a new architecture."

The gateway module lets users interconnect LAN-attached endpoints in IP networks with ISDN-based video networks supporting the H.320 and H.323 multimedia-over-IP standards. This module features two ISDN Primary Rate Interface ports and supports up to 30 simultaneous videoconferences between the IP and ISDN networks.

The application service and T.120 data-conferencing server module is based on an Intel Pentium processor running Microsoft Windows NT server software. The server hosts a T.120 data-conferencing application, which works with T.120 client software on participants' workstations to enable data sharing and collaboration in a multipoint videoconference.

Pricing for the 3540 starts at $45,900 for 30 users and $100,900 for 100 users. The MCU and application/data-conferencing server module will be available in March; the gateway module will ship midyear.

Cisco: www.cisco.com.

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Wired Windows . Dave Kearns

Novell's Volera: Time will tell

While Microsoft argues valiantly in the Court of Appeals to prevent the breakup of the company, Novell has voluntarily spun off what many consider to be its most successful current product.

Novell took its caching appliance software (ICS), bundled it with some technologies acquired in the purchase of JustOn.com and launched a new subdivision called Volera — which it hopes to take to an IPO soon. Although Nortel Networks and Accenture (formerly Andersen Consulting — and it will do anything to get the new name in front of people: such as give Novell money and advertise during the Super Bowl) are minority partners in the venture, they appear to serve mostly as window dressing because the officers and the employees hail from Novell.

The new company will be headed by Simon Khalaf, also acquired by Novell with the JustOn purchase. It looks like Novell is relaunching JustOn with a new name but most of the same employees. There's one significant addition, though, and it's the one that could cause Novell the most trouble.

Of the four people generally credited with creating NetWare, only one was still with Novell last year. Drew Major was a vice president and most recently served as chief scientist and technology officer of the Net Content division, which included the bulk of the products spun off. Major is credited with creating the caching software that made ICS so successful, and it's logical he should go with that product. But to the NetWare faithful, it's like the final tolling of the bell on the venerable network operating system. Yet Novell continues to say NetWare will be with us for the foreseeable future — through NetWare 6 and possibly NetWare 7.

The last time Novell launched a subsidiary was 1997. Called Novonyx, the supposed joint venture with Netscape Communications to port Netscape products to the NetWare platform was managed and staffed (and funded) heavily by Novell with little except source code coming from Netscape. In 1998, the company's management was fired, the partnership broken up and development brought back inside Novell less than a year after being launched with much fanfare. Volera has a better foundation, but it remains to be seen if it's strong enough to build a company on.

Kearns, a former network administrator, is a freelance writer and consultant in Austin, Texas. He can be reached at wired@vquill.com.

Tip of The Week

For many years, Drew Major has roused the troops at Novell's BrainShare conference by giving the keynote address during the Friday morning session, usually in a breezy, iconoclastic look at NetWare's future. It will be interesting to see how (or if) this will change with the launch of Volera. It could be a watershed event. Keep your eye on www. novellbrainshare.com to see what will happen.

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B201

1. What is the principal business activity at your location? (check ONE only)

01. ☐ Manufacturing (other)
02. ☐ Finance/Banking
03. ☐ Insurance/Real Estate/Legal
04. ☐ Health Care Services
05. ☐ Hospitality/Entertainment/Recreation
06. ☐ Media/TV/Cable/Radio/Print
07. ☐ Retail/Wholesale Trade/Business Services
08. ☐ Transportation
09. ☐ Utilities/Process Industries/Mining, Construction, Petroleum, Refining, Agriculture, Forestry
10. ☐ Education
11. ☐ Government/Military
12. ☐ Consulting (Independent) *
13. ☐ Communications Carriers
14. ☐ ISP
15. ☐ ASP
16. ☐ Manufacturing (Computer/ Communications/OEM)
17. ☐ Resellers/VARs/VADs/Integrators/ Distributors* (Computers/Communications)*
18. ☐ Other (please specify) _____

*Attn Consultants, Integrators, Distributors, Resellers: Please complete form based on ALL clients and your own business needs

2. P: What is your primary job function? (check ONE only) S: What is your secondary job function? (check ALL that apply)

P	S		P	S		P	S	
☐	☐	1. Network Management	☐	☐	5. Internet/Intranet/ E-Commerce Management	☐	☐	8. Consultant (Independent)
☐	☐	2. LAN Management	☐	☐	6. Engineering Management	☐	☐	9. Other (please specify) _____
☐	☐	3. Datacom/Telecom Management	☐	☐	7. Corporate Management (CEO, COO, CFO, Pres., VP, Dir., Mgr.)			
☐	☐	4. CIO/CTO/IS/IT/MIS/ Systems Management						

3. What is the estimated value of Network equipment and services that you specify, recommend, or approve the purchase of?

(Please print the appropnate number code on the line next to each product category. Please complete ALL categories A–O.)

1. $100 Million or more
2. $50 Million to $99.9 Million
3. $25 Million to $49.9 Million
4. $10 Million to $24.9 Million
5. $1 Million to $9.9 Million
6. $100,000 to $999,999
7. $50,000 to $99,999
8. Under $50,000
9. None of the above

A ____ Large Systems *(Mainframes/Minis)*
B ____ Desktops *(Micras/Laptaps/ Workstations)*
C ____ Mobile *(including PDAs, Wireless)*
D ____ Servers
E ____ LANs
F ____ WAN Equipment
G ____ Carrier Services
H ____ Internetworking *(including Rauters, Switches)*
I ____ Internet/Web/E-eommerce
J ____ Intranet/Extranet
K ____ Remote Access
L ____ Peripherals
M ____ Software
N ____ Service/Support Services
O ____ Storage

4. What is the total number of sites for which you have purchase influence? (check ONE only)

1. ☐ 100+ 2. ☐ 50 to 99 3. ☐ 20 to 49 4. ☐ 10 to 19 5. ☐ 2 to 9 6. ☐ 1 7. ☐ None

5. What is the total number of Servers/Clients/LANs installed/planned at your location/ in your entire organization? (check ONE box in each column)

SERVERS			CLIENTS			LANs		
At Location		Entire Org.	At Location		Entire Org.	At Location		Entire Org.
A		B	C		D	E		F
☐	1. 50,000+	☐	☐	1. 50,000+	☐	☐	1. 50,000+	☐
☐	2. 10,000 to 49,999	☐	☐	2. 10,000 to 49,999	☐	☐	2. 10,000 to 49,999	☐
☐	3. 1,000 to 9,999	☐	☐	3. 1,000 to 9,999	☐	☐	3. 1,000 to 9,999	☐
☐	4. 100 to 999	☐	☐	4. 100 to 999	☐	☐	4. 100 to 999	☐
☐	5. 50 to 99	☐	☐	5. 50 to 99	☐	☐	5. 50 to 99	☐
☐	6. 10 to 49	☐	☐	6. 10 to 49	☐	☐	6. 10 to 49	☐
☐	7. 1 to 9	☐	☐	7. 1 to 9	☐	☐	7. 1 to 9	☐
☐	8. none	☐	☐	8. none	☐	☐	8. none	☐

6. What is your scope and involvement in purchasing decisions for network products and services for your enterprise?

A. Scope (check ONE only)

CORPORATE
1. ☐ Entire Enterprise/Multiple Enterprises
2. ☐ Division/Multiple Divisions
3. ☐ Department
4. ☐ None

B. Involvement (check ALL that apply)

1. ☐ Create Network/IT Strategy
2. ☐ Recommend/Specify Brand
3. ☐ Approve Purchase
4. ☐ Evaluate Products/Services
5. ☐ Determine the Need
6. ☐ None

7. What is the estimated number of employees at your location/in entire organization? (check ONE in each section)

A. At your location:

1. ☐ Over 20,000
2. ☐ 10,000 – 19,999
3. ☐ 5,000 – 9,999
4. ☐ 2,500 – 4,999
5. ☐ 1,000 – 2,499
6. ☐ 500 – 999
7. ☐ 250 – 499
8. ☐ 100 – 249
9. ☐ 99 or less

B. Entire organization:

1. ☐ Over 20,000
2. ☐ 10,000 – 19,999
3. ☐ 5,000 – 9,999
4. ☐ 2,500 – 4,999
5. ☐ 1,000 – 2,499
6. ☐ 500 – 999
7. ☐ 499 or less

8. Please indicate the Internet/Intranet/WAN/LAN/Remote products/services that you are currently involved in purchasing or plan to purchase (check ALL that apply)

A. Currently involved in purchasing B. Plan to purchase

INTERNET/INTRANET

A	B		A	B		A	B	
☐	☐	01. VPN Equipment	☐	☐	07. Web Hosting	☐	☐	13. Web Based Collaboration/ Groupware
☐	☐	02. VPN Services	☐	☐	08. Content Hosting	☐	☐	14. Web Acceleration/Caching/ Load Balancing Products
☐	☐	03. Firewalls/Security/Encryption	☐	☐	09. Traffic Management			
☐	☐	04. Electronic Commerce Tools	☐	☐	10. Web Development Tools			
☐	☐	05. Web Servers/Software	☐	☐	11. Management/Monitoring Software	☐	☐	15. Other Internet/Intranet
☐	☐	06. Internet Services	☐	☐	12. Web Based Management Tools			

LANs/INTERNETWORKING

A	B		A	B		A	B	
☐	☐	16. Local-Area Networks	☐	☐	26. Layer 4-7 Switches	☐	☐	34. Hubs/Intelligent Hubs/ Stackable Hubs
☐	☐	17. Network Operating System Software (NOS)	☐	☐	27. ATM Switches	☐	☐	35. Cables,Connectors, Baluns
☐	☐	18. Intel Based Servers	☐	☐	28. Token-Ring Switches	☐	☐	36. Management Frameworks
☐	☐	19. Intel Based Multiprocessor Servers	☐	☐	29. Network Storage (NAS, SANs)	☐	☐	37. Call Center Tools
☐	☐	20. RISC Based Servers	☐	☐	30. Storage/Backup (Optical, Disk, Tape, RAID)	☐	☐	38. Voice over LAN
☐	☐	21. Clustered Servers	☐	☐	31. Network Test/Diagnostic Tools	☐	☐	39. Other Local-Area Network/ Internetworking
☐	☐	22. Print Servers	☐	☐	32. UPS			
☐	☐	23. Routers	☐	☐	33. Network Interface Cards (NICs, PCMCIA)			
☐	☐	24. Layer 2 Switches						
☐	☐	25. Layer 3 Switches						

REMOTE/WIRELESS

A	B		A	B		A	B	
☐	☐	40. PDAs	☐	☐	42. Remote Access Services	☐	☐	44. Other Remote/Wireless
☐	☐	41. Remote Access Products	☐	☐	43. Wireless Data Equipment/Services			

WAN EQUIPMENT & SERVICES

A	B		A	B		A	B	
☐	☐	45. Modems	☐	☐	51. FT-1/T-1/T-3 Services	☐	☐	58. Managed LAN/Router Services
☐	☐	46. Cable Modems	☐	☐	52. xDSL Services/Products	☐	☐	59. Fax Servers/Services
☐	☐	47. Asynchronous Transfer Mode (ATM)	☐	☐	53. Diagnostic/Test Equipment	☐	☐	60. Other WAN Equipment/Services
☐	☐	48. Frame Relay Equipment including FRADS	☐	☐	54. DSU/CSU		A	B
☐	☐	49. Frame Relay Services	☐	☐	55. PBXs	None of the above (1 – 60)	☐	61. ☐
☐	☐	50. ISDN Equipment/Services	☐	☐	56. Voice/Video over IP Gateways			
			☐	☐	57. Videoconferencing			

9. Please indicate the Network hardware/software/services that you are currently involved in purchasing or plan to purchase: (check ALL that apply)

A. Currently involved in purchasing B. Plan to purchase

SYSTEMS/PERIPHERALS

A	B		A	B		A	B	
☐	☐	01. Laptops/Notebooks	☐	☐	05. Storage/Backup (Optical,Disk,Tape,RAID)	☐	☐	08. Minis
☐	☐	02. PCs				☐	☐	09. Mainframes
☐	☐	03. Windows Terminals/Thin Clients	☐	☐	06. Printers	☐	☐	10. Fax/Modem Boards
☐	☐	04. Workstations	☐	☐	07. Printer/Fax/Copier Hybrids (Multifunction Printers)	☐	☐	11. Memory/Chips/Boards/Cards
						☐	☐	12. Other Computers/Peripherals

SOFTWARE/APPLICATIONS

A	B		A	B		A	B	
☐	☐	13. Network Management (incl. SNMP)	☐	☐	20. Groupware	☐	☐	27. Document Management
☐	☐	14. Systems Management	☐	☐	21. E-Mail	☐	☐	28. Site Metering Tools
☐	☐	15. Security	☐	☐	22. Enterprise Resource Planning (ERP)	☐	☐	29. Data Warehousing
☐	☐	16. Directory Services	☐	☐	23. EDI	☐	☐	30. Anti Virus Software
☐	☐	17. Operating Systems	☐	☐	24. Desktop Videoconferencing	☐	☐	31. Multimedia
☐	☐	18. Applications Development Tools	☐	☐	25. Imaging	☐	☐	32. Helpdesk
☐	☐	19. Database Management/RDBMS	☐	☐	26. Middleware/Serverware	☐	☐	33. Other Software/Applications

SERVICES

A	B		A	B		A	B	
☐	☐	34. BPO (Business Process Outsourcing incl. Financial Services, HR, Logistics, etc.)	☐	☐	35. ASP Services	☐	☐	38. Education/Training Services
			☐	☐	36. Call Center Outsourcing	☐	☐	39. Other Services
			☐	☐	37. Systems Integration/Consulting	A		B
						None of the above (1 – 39)		☐ 40. ☐

10. Please indicate the platforms that are currently installed/planned: (check ALL that apply)

A. Currently installed B. Planned for purchase

NETWORK PROTOCOLS

A	B		A	B		A	B	
☐	☐	01. TCP/IP	☐	☐	05. APPC/APPN/LU 6.2	☐	☐	09. HTTP
☐	☐	02. IPV6	☐	☐	06. NETBIOS/NETBUEI	☐	☐	10. Other Network Protocols
☐	☐	03. SNA	☐	☐	07. NFS			
☐	☐	04. Novell IPX/SPX	☐	☐	08. SNMP			

LAN/WAN ENVIRONMENT

A	B		A	B		A	B	
☐	☐	11. Gigabit Ethernet	☐	☐	17. Layer 3,4 Switching	☐	☐	23. DSL
☐	☐	12. Switched Ethernet	☐	☐	18. FDDI	☐	☐	24. ISDN
☐	☐	13. Fast Ethernet	☐	☐	19. 100Base-T	☐	☐	25. Frame Relay
☐	☐	14. Ethernet	☐	☐	20. 10Base-T	☐	☐	26. Private Line T1, T3, FT-1, SONET
☐	☐	15. ATM	☐	☐	21. Fibre Channel	☐	☐	27. Other LAN/WAN Environment
☐	☐	16. Token Ring/Token Ring Switching	☐	☐	22. Wireless LANs			

NETWORK OPERATING SYSTEM

A	B		A	B		A	B	
☐	☐	28. Windows NT/Windows 2000	☐	☐	31. Novell (NetWare 2.X,3.X)	☐	☐	34. Banyan (Vines)
☐	☐	29. Novell (NetWare 5.X)	☐	☐	32. LINUX	☐	☐	35. IBM (LAN Server)
☐	☐	30. Novell (NetWare 4.X)	☐	☐	33. Microsoft (LAN Manager)	☐	☐	36. Other Network Operating System

COMPUTER OPERATING SYSTEM

A	B		A	B		A	B	
☐	☐	37. NT Workstation	☐	☐	42. LINUX	☐	☐	47. Digital VMS
☐	☐	38. Windows 2000	☐	☐	43. DOS	☐	☐	48. Macintosh
☐	☐	39. Windows 98/95/3.1	☐	☐	44. OS/2,OS/2 WARP	☐	☐	49. Other Computer Operating System
☐	☐	40. Intel based UNIX	☐	☐	45. OS/400		A	B
☐	☐	41. RISC based UNIX (incl. SOLARIS)	☐	☐	46. IBM MVS/VM/VSE/ESA	None of the above (1–49)	☐	50. ☐

11. Which of the following hardware platforms are installed/planned in your company? (check ALL that apply)

A - Mainframes (Large Scale)	B - Minis (Midrange)	C - Workstations
1. ☐ IBM	1. ☐ IBM RS/6000	1. ☐ Sun Microsystems
2. ☐ Other	2. ☐ IBM AS/400	2. ☐ H-P
	3. ☐ Digital/Tandem/Compaq	3. ☐ Digital/Compaq
	4. ☐ Unisys	4. ☐ IBM
	5. ☐ H-P	5. ☐ Silicon Graphics
	6. ☐ Other	6. ☐ Other

12. What is the estimated gross revenue of your entire company/institution? (check ONE only)

1. ☐ $20 Billion or More
2. ☐ $10 Billion to $19.9 Billion
3. ☐ $1 Billion to $9.9 Billion
4. ☐ $500 Million to $999.9 Million
5. ☐ $100 Million to $499.9 Million
6. ☐ $50 Million to $99.9 Million
7. ☐ $10 Million to $49.9 Million
8. ☐ $5 Million to $9.9 Million
9. ☐ $4.9 Million or Less
10. ☐ None of the above

13. For which areas outside of the U.S.A. do you have purchase influence? (check ALL that apply)

1. ☐ Europe
2. ☐ Asia
3. ☐ South America
4. ☐ Australia
5. ☐ Middle East
6. ☐ Africa
7. ☐ Canada
8. ☐ None

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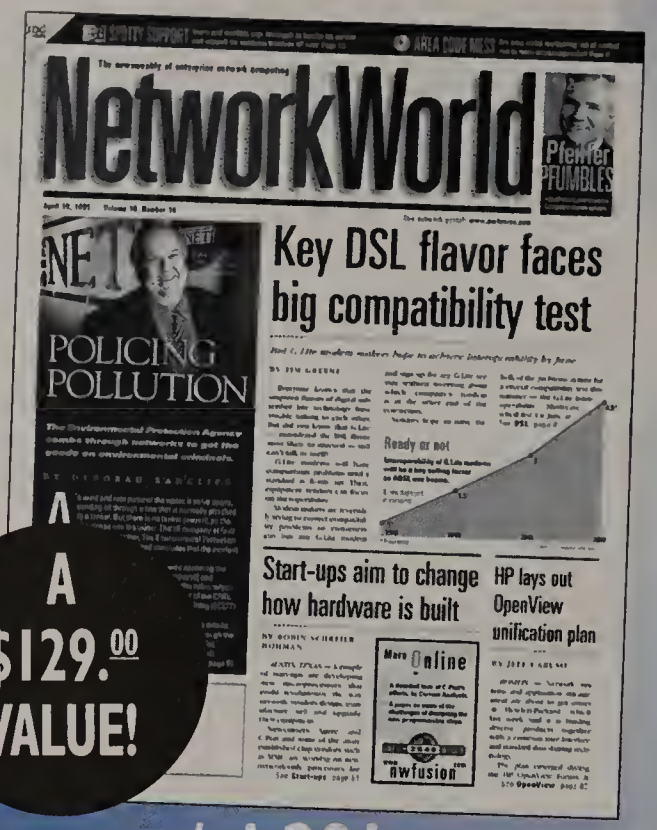

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Net.Worker

Products, services and strategies for tying teleworkers to the enterprise

Briefs

Remote branch offices are underserved when it comes to IT infrastructure, presenting a ripe opportunity for outside services and hosted applications, according to a report by Cahners In-Stat. The report, **"All Business is eBusiness: U.S. Remote Branch Office Demographics & the Impact of Fragmentation,"** puts the number of remote branch offices in the U.S. at two million. While more than half are part of corporations, small office/home office businesses account for nearly 40%. Most average one branch office per firm, with many considering full-time home offices remote sites.

Remote workers need back-up solutions, too. **Veritas** just shipped NetBackup Professional 3.1, which adds the capability to back up laptops and remote PCs to Windows- and Unix-based servers. The software runs transparently in the background to back up many applications, and can be administered remotely. Users create schedules that will automatically back up data at convenient times and can restore files with a mouse click. A five-user license starts at $445.

Veritas: www.veritas.com

Rolling out desktop videoconferencing to your Microsoft Outlook 2000 users just got easier. Recently, **CUseeMe Networks** announced the integration of its software-based CUseeMe Conference Server with Microsoft Exchange. This lets users share audio, video and data using the CUseeMe Web client or any mix of H.323 and Microsoft multicast (TAPI) clients. Conference Server costs $8,995, while Exchange integration costs another $3,995. The CUSeeMe Cam Kit, which includes software and an eyeball camera, is $69.

CUseeMe: www.cuseeme.com

Need dial-up VPN? Look to Win 2000

BY TIM GREENE

If you're building a dial-up VPN so workers in home offices or small offices can connect to the company headquarters, you might want to consider using the VPN capabilities of Windows 2000 as a way to save money and time.

But, experts say, Win 2000 VPN support is not for everyone, especially those who demand a high-speed connection or whose applications require quick response time across the VPN.

Because Win 2000 software includes VPN support, customers don't have to buy separate VPN software for each PC or spend time distributing it, says Thaddeus Fortenberry, author of *Windows 2000 Virtual Private Networking*. When you have thousands of remote clients, distributing and maintaining software is a nightmare and a huge expense.

Cost savings is what drives many companies to choose remote-access VPNs in the first place. Rather than pay long-distance phone bills to take calls from remote PCs, these remote access VPNs use the Internet. For the price of a local call, remote users can connect to headquarters, avoiding the expense of long-distance or 800-number connections directly to a remote access server.

Remote users can connect to a Win 2000 server or to VPN servers from companies such as Cisco and Nortel Networks. Similarly, SafeNet, the second-largest maker of VPN client software, behind Microsoft, has made its Safenet/SoftPK client compatible with Win 2000 servers. This Win 2000 compatibility makes it possible to set up VPN connections among business partners that don't have VPN gear made by the same vendors.

However, companies that require thousands of remote connections may want to consider using a single-purpose

See **Win 2000**, page 24

Videoconferencing creeps toward the home

BY JOHN FONTANA

Teleworkers, don't start dressing for the office camera just yet.

While desktop videoconferencing is enjoying heightened interest in corporations, its tentacles will be slow to reach at-home workers, according to experts.

The limiting factors include availability of bandwidth, security, management and cultural issues that make the technology a hard sell beyond corporate headquarters.

Glen Miller, global manager for video communications for Pharmacia, has been deploying conference room videoconferencing systems for 20 years. The 10th-largest pharmaceutical company, Pharmacia has 60,000 employees spread across 60 countries, and as such deems videoconferencing its "global productivity tool" for conducting geographically dispersed meetings. On opening its new headquarters in Peapack, N.J., the company equipped the facility's 56 conference rooms for video, bringing the company's total number of video-equipped meeting rooms to 300.

Even so, Miller has deployed only 100 desktop video systems, and only a half dozen of those to home workers, mostly executives or researchers.

Wiring the at-home workers was a chore, Miller says. Because the company only works with digital systems, Miller and his staff had to make sure workers could provision ISDN service. Then they had to visit each worker's home to set up the system. "We only give it to those people who show a business need," he says.

While the availability of DSL and cable services is helping spur market growth, several factors still prevent desktop videoconferencing from reaching its potential, says Christine Perey, president of Perey Consulting, which focuses on the videoconferencing market. "[Asymmetric DSL] has a low-bandwidth upload that means poor video performance," Perey says.

Another issue is that desktop videoconferencing is intrusive, and participants are too small on the screen. "It's too close for what is considered normal personal space," Perey says. "And while I believe in the long-term viability of videoconferencing, I don't think it is going to happen in a two-inch [square] window."

See **Video**, page 24

Videoconferencing picture

Desktop videoconferencing in corporations is expected to grow at a modest rate during the next three years.

SOURCE: PEREY CONSULTING

Telework Beat . Toni Kistner

ITAC ANNOUNCES AMBITIOUS TRAINING INITIATIVE

The Washington, D.C., office of the International Telework Association and Council (ITAC, www.telecommute.org) used to be a pretty quiet place. But these days the telework industry organization is flooded with phone and mail requests for information on how to launch telework programs, and how to train, recruit and manage teleworkers and their managers. Requests also come in from aspiring teleworkers hoping to score job leads and the names of telework-amenable companies.

With telework becoming so hot, the lucrative telework consulting business — made up of a relatively small group of former corporate human resource and business managers (and staunch ITAC members) — is being met with competition from other circles, namely broadband and network vendors and integrators that have begun offering telework consulting as a value-add service.

While big DSL providers Covad Communications and Rhythms are ITAC members, plenty of smaller network service providers have not contacted ITAC for guidance and information, which worries ITAC President John Edwards. Although these companies "do a good job of providing secure connectivity, they will have almost no clue of how to help with the back-office policy, procedure, security, support and training details," he says.

Moreover, as telework shifts from niche work style to mainstream business practice, Edwards fears the number of companies looking for help implementing programs will far outpace qualified ITAC member consultants. This could leave an opportunity for "carpetbag telework consultants" to implement poorly planned and managed programs that could ultimately fail, giving telework a black eye.

However, ITAC's solution is a telework training and certification program aimed at telework consultants, business and network managers, and would-be teleworkers. While still in the planning stages, Edwards says the program will be developed and run by an offshoot organization independent of ITAC called the Telework Institute. It likely will be made up of members of the same group that helped develop ITAC's recently released telework manual, the eWork Guide — companies including AT&T, Nortel Networks and Cisco.

"It's ITAC's duty to provide the education needed to help ensure the practice of teleworking does not fall into disrepute just as it's receiving serious mainstream interest," Edwards says.

The plan and its timetable are ambitious. Classes will be held entirely online. The curricula will be developed with the help of Oxford University and the University of Virginia's Center for Innovative Technology, and will tackle a laundry list of topics such as remote management, computer troubleshooting, worker health and safety, time management, policies and procedures, legal issues, overcoming isolation and team building.

At the end, students will take a certification exam — something akin to the real estate license exam, Edwards explains. ITAC expects to form the Telework Institute shortly, develop the curricula by the summer and see the first students certified by next winter.

While ITAC's main concern is training managers and certifying consultants, formalized education will benefit workers. "There's a great untapped labor pool out there — part-time workers, stay-at-home parents, the disabled, retired persons, workers living in remote areas, spouses of military personnel. They can all obtain a trusted skill set that will help provide them with a better standard of life," Edwards says.

While employers still want to see workers for three to six months before trusting them to telework, in time, such a policy may seem luxurious. Companies, namely software developers, are beginning to hire workers sight unseen to gain a competitive edge. Instead of taking four days to get a project finished, Edwards says, companies can "follow the sun" by handing off a project to a string of workers in Europe, America, India, and get it done in a day and a half.

Kistner is the managing editor of the Net.Worker section. She can be reached at tkistner@nww.com.

Win 2000,
continued from page 23

VPN server rather than a Win 2000 server, Fortenberry says. In his work as the VPN program manager for Compaq's internal VPN, he says he limits the number of simultaneous VPN connections to 2,000 per server to avoid performance drop-offs that Win 2000 is susceptible to.

Network executives should also keep in mind that this technology is best-suited to dial-up-speed connections, up to the maximum 128K bit/sec of ISDN, says John Lawler, an analyst with Infonetics Research. That is because the software uses the processor of the host PC to encrypt the VPN packets. If the speeds are much greater than 128K bit/sec, you can run into performance problems, depending on the type of traffic you're running over the VPN, he says.

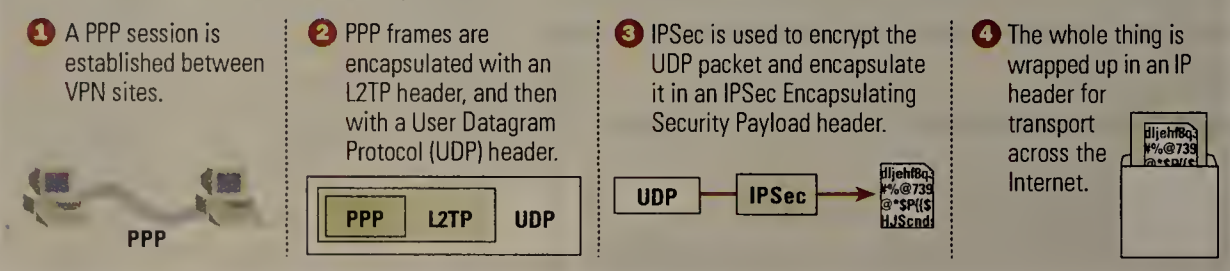
So higher-speed connections such as DSL and cable modems might be better-served by VPN appliances, separate hardware that connects remote PCs to Internet links and handles all VPN processing, Lawler says. Remote users running multiple applications at once or uploading large files will find VPN appliances prevent their PCs from slowing down during VPN sessions, he says.

The Win 2000 VPN package uses a mix of Layer 2 Tunneling Protocol (L2TP) and IP Security (IPSec), two major VPN standards, to build its VPN software. Other vendors use pure IPSec for encapsulating and authenticating VPN traffic, but Microsoft shifts that task to L2TP. That means customers can send non-IP traffic such as Unix or Appletalk over the Internet rather than just IP.

Microsoft says it will support pure IPSec when it includes a stable standard for handling non-IP traffic. ◪

Win 2000 VPN tunneling

Windows 2000 uses Layer 2 Tunneling Protocol (L2TP) and IP Security (IPSec) standards to protect traffic as it crosses an IP VPN.



Video,
continued from page 23

However, viability is being boosted by new features and falling prices. Recently, desktop videoconferencing market leaders Polycom and VCon each introduced Universal Serial Bus plug-and-play units, and Sorenson Technologies also offers a USB unit called EnVision.

"With USB, you no longer have to crack open the computer case and install a PCI card in the PC," says VCon's Senior Vice President of Global Marketing Gordon Daugherty.

Last month, VCon also introduced its Media Xchange Manager, a server-based product that provides video call transfer, forwarding and call pickup, as well as bandwidth management features.

Falling prices also are an enticement. VCon's Vigo is $700. The ViaVideo from Polycom is priced at $600. Sorenson's unit is $900.

"Just two years ago, desktop systems were priced from $3,000 to $7,000," says Bill Blagdan, Polycom's director of product marketing for emerging technologies. "The big problem with teleworkers is that they don't feel a part of what's going on at the office. Videoconferencing can put them back in the office."

But the positive developments are tempered by IT issues, including the need for network address translation to establish a static IP address. Dynamic IP addressing doesn't work because an IP address is like a phone number, and it would be chaos if it were constantly changing. Security concerns center on opening firewall ports to allow H.323 video traffic. There also are management issues, especially allocating bandwidth and policing video traffic.

Research done by Perey Consulting tells the story. Nearly 80,000 desktop units were sold to the enterprise last year, representing $53 million in revenue. By 2004, the market will only grow to 170,000 units shipped and $80 million in revenue.

"Desktop videoconferencing still has a lot of growing up to do. Right now, users have to show a compelling need," Perey says. ◪

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Briefs

Genuity announced last week that it is investing $10 million in **Yipes Communications** for ongoing construction of the Yipes network.

Yipes has also agreed to buy managed Internet connectivity services from Genuity over the next several years. This deal also stipulates that Yipes will use Genuity's network to support more than one-third of its national network connectivity needs.

The companies are also looking at service reselling deals down the road. For instance, Genuity may private-label Yipes Gigabit Ethernet services and sell them to Genuity customers.

Genuity: www.genuity.com; Yipes: www.yipes.com

Genuity also announced a new version of its Black Rocket managed hosting bundle. The service uses Sun servers running Solaris.

The package includes Sun Enterprise and Sun T-3 StorEdge arrays, iPlanet Application Server, Web server and Directory Server software.

The Sun Black Rocket service will not be available until later this year. Genuity already offers a Microsoft Windows NT version of the service.

GiantLoop Network's Mark Ward has been promoted from president to CEO of the Waltham, Mass., provider of enterprise optical network services. He assumes that title from company co-founder Harry Dixon, a former EMC executive who will remain in his role as chairman of the board and remain active in executive management, according to a statement from the company. In addition, Jim Sullivan has signed on as COO.

Powell promises 'deregulatory' tack

New FCC chief says market forces, competition among technologies trump need for 'Bell look-alikes.'

BY DAVID ROHDE

Competitive local exchange carriers and independent ISPs looking for guaranteed access to big local phone and cable networks may soon start finding a chilly reception at the Federal Communications Commission.

In his initial press conference last week, newly appointed Republican FCC Chairman Michael Powell said he will take a more purely "deregulatory" approach than his Democratic predecessors. He indicated a preference for letting capital markets sort out winners and losers.

Powell was careful not to announce his vote on pending matters such as the FCC's inquiry on cable "open access." He prefaced his remarks on several issues by noting that it was a "hard question" and saying he wants to reform the FCC's internal structure to enable quicker decision making.

But Powell did say he doesn't fault the Telecommunications Act of 1996 for failing to bring mass-market competition among "Bell look-alikes." Rather, he said the statute's main achievement was to "unleash broadband."

New FCC Chairman Michael Powell, a commissioner since 1997, was careful not to tip his hand on pending issues, such as cable open access, at his initial press conference last week.

The resulting move by AT&T to buy cable companies forced Bell companies to "bring DSL out of the closet," Powell said. The ensuing competition among phone, cable and now wireless companies is more important to users than "the third Bell look-alike in the market."

An FCC commissioner since 1997, Powell was recently designated chairman by President Bush. He replaced Democrat William Kennard, who championed a more activist approach.

Powell said the CLECs' problems in the capital markets are largely "an overreaction to the dot-com problem." But in the competition between Bells and independent DSL providers, Powell said there were some "poor implementations" and "poor execution." He pointedly declined

See **FCC**, page 28

Sprint extending its Internet reach overseas

New international backbone will connect 15 cities by year-end.

BY MICHAEL MARTIN

LONDON — Sprint unveiled plans last week to expand its SprintLink Internet backbone into Europe and Asia in a move industry observers believe should help the service provider retain its U.S.-based multinational customers.

Sprint currently provides international connections through resale agreements with WorldCom and Global One. But Brownlee Thomas, an analyst with consultancy Giga Information Group, says establishing its own international backbone was a necessary step for Sprint.

"If you're a Sprint customer, why would you want to buy services from Sprint through WorldCom?" she asks. "Why not just go directly to WorldCom?"

"You can bet your bottom dollar that WorldCom is going after those customers," Thomas adds.

By year-end, Sprint will have 15 major cities in 13 countries connected to its global IP network, says Wil Wilhelm, vice president of Sprint International.

The cities include London, where Sprint International is based; Amsterdam; Frankfurt, Germany; Paris; Stockholm, Sweden; Milan, Italy; Brussels, Belgium; Copenhagen, Denmark; Dublin, Ireland; Hamburg, Germany; Munich; Hong Kong; Tokyo; Sidney, Australia; and Singapore.

Sprint is already providing services over its own backbone in London. Access speeds being offered include E-1, E-3 and STM-1. The company says it will soon add fractional E-1 and STM-4 services, which will let customers buy bandwidth in smaller increments.

By the end of 2003, Sprint hopes to have 35 cities in 19 countries connected.

Large European business centers will be linked to a 10G bit/sec backbone, Wilhelm says.

Sprint will connect its existing IP network to its international backbone through undersea cables. The provider is a partial owner of several undersea cable systems.

In addition to its SprintLink transport services, the company will offer international customers IP VPN, collocation, managed router and managed firewall services.

Until Sprint's backbone is completed, it will continue to serve its multinational customers through third-party agreements.

Sprint: www.sprint.com

Eye on the carriers . David Rohde

FIXING THE TELECOM MERGER CULTURE

There's a fair amount of excitement over the appointment of Michael Powell as chairman of the Federal Communications Commission.

One reason undoubtedly is his semi-celebrity status as son of Secretary of State Colin Powell.

Another is that the new FCC boss is the first who quotes John Chambers instead of Alexander Graham Bell and talks about disruptive technologies more than universal service, qualifying him at age 37 for what the marketing geniuses at WorldCom call "generation d."

"Win one for the Gipper."
— Knute Rockne

Powell's getting a lot of advice from people who have access to a printing press. So I'm going to pile on, but not with the typical recommendation that he promote competition and deregulation. Most people who say this don't realize the two don't necessarily go together. Some of the biggest advocates of "competition" are the ones braying for more regulation, often via euphemisms such as "open access."

Instead, Powell needs to streamline regulation, largely by eliminating the culture of complex mergers created by former chairman William Kennard.

Hold on a minute, you say. Kennard didn't ask for all these mergers, he complained about them. But I believe Kennard's approach produced the opposite result he intended. Look at the invariable sequence of events:

1) Carriers announce merger; Kennard complains. 2) CEOs convince Kennard to think about it while they sign up former FCC officials as high-priced lobbyists. 3) Kennard signals staff to negotiate with lobbyists for "conditions" that sound good. 4) Conduct months of negotiations (for example, it took Bell Atlantic and GTE five tries to propose the "right formula" to spin off Genuity). 5) Approve merger with conditions as Kennard gloats about user benefits. 6) Merging companies go back to doing exactly what they want.

Step 7 was always the worst: Each of the major telecom mergers approved under Kennard's watch — WorldCom/MCI, SBC Communications/Ameritech and Bell Atlantic/GTE — was followed by a severe degradation of customer service. And why not? Kennard trained these companies to shift their centers of executive energy to negotiating insincere side deals with regulators rather than executing network buildouts or improving customer service.

If Powell is faced with a big merger, the first thing he should do is shut up. Then, in private, he should ask the merging CEOs why they haven't first done whatever the law says they're supposed to be doing — applying for long-distance in all their states if they're Bell companies, or offering mass-market local service if they're long-distance carriers.

To make this effective, he should brutally enforce the FCC's interconnection rules but tell carriers he won't listen to lobbying for new rules, including blockades on Bell long-distance applications.

He should also take seriously a section of telecom law that enables the FCC to start deregulating some high-speed data services.

If the carriers are executing and innovating, Powell should then say: "Go ahead and merge and forget the conditions" (assuming they haven't decided to compete with each other instead). But if they haven't taken advantage of the powers they already have, Powell should take a cue from a past Republican first lady and "Just Say No."

Rohde is managing editor of The Edge section of Network World. *He can be reached at drohde@nww.com.*

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continued from page 27

to identify whether he was referring to the Bells or CLECs, or both.

"A lot of people show up to gold rushes," Powell added. "Not everybody comes home with the gold."

Powell also questioned whether it was a given that ISP "open access" to cable networks owned by giants including AT&T and AOL Time Warner was desirable.

"Openness is not always good," Powell said. "A market works when both consumers and producers have value to exchange . . . I don't like the knee-jerk assumption that it is discriminatory for a provider to maintain certain advantages."

On carrier mergers, Powell stopped short of agreeing to what have been repeated congressional calls for a fixed timetable for FCC review, such as 90 to 180 days. But he could accept specified intervals for making intermediate decisions on mergers to speed the process.

In other issues, Powell:

- Issued a broad hint to Bell companies to speed up submissions of long-distance applications, indicating the FCC won't add new barriers. Deregulation is not just a "dessert" to be handed out "after people have eaten all their vegetables," he said.
- Appeared unlikely to review or overturn last-minute actions by Kennard's FCC, such as a start on regulating instant messaging, despite a recent White House memo asking agency chiefs to review actions in the last days of the Clinton administration.
- Gave lukewarm support to the E-rate program for providing subsidized Internet access and telecom services at schools and libraries.

Powell said he would support and administer levels of funding directed by Congress and the Bush administration but would not champion the program, unlike Kennard, who made school Internet access his signature issue. ◪

Briefs

Extreme Networks, as part of its push to extend Ethernet over telephone company circuits using T-1 and very-high bit rate DSL (VDSL), has released further configuration and pricing details for new WAN modules for its Alpine switch (www.nwfusion.com, DocFinder:2927).

The WM-4T1 module has four T-1 ports, four 10/100M bit/sec ports and costs $6,000. The FM-8Vi module has eight Ethernet-based 10M bit/sec VDSL ports and is priced at $7,000. The Alpine chassis can support a total of 64 VDSL ports, and Extreme will also provide its own VDSL modems for terminating connections.

Quantum Bridge Communications, a maker of passive optical network systems for service providers building fiber deep into office parks and residential neighborhoods, has added ATM switching capabilities to its QB5000 Optical Access Switch. The move is designed to eliminate the need for a separate ATM switch in the service provider's point of presence. Quantum Bridge is also adding an OC-3 time-division multiplexing gateway.

Quantum Bridge: www.quantumbridge.com

Softswitch maker **Convergent Networks** says it aims to deliver packet voice services over hybrid fiber-coaxial cable networks. The company announced it has joined the PacketCable interoperability initiative sponsored by **Cable Television Laboratories (CableLabs)**. PacketCable, built on top of the DOCSIS 1.1 cable-modem standard, is designed to enable IP telephony, multimedia conference and a range of telecommuter services.

ISPSoft can provision across hardware

New firm promises to speed provisioning of IP services.

BY TIM GREENE

Start-up ISPSoft is introducing provisioning software that handles the configuration of multiple vendors' equipment employed in a single IP service.

ISPSoft's Universal Provisioning Switch (UPX) software is designed to let enterprise or carrier network administrators designate a service to be delivered to an end user and sit back while the software provisions the devices involved. Usually network administrators have to employ several network management platforms to carry out this process device by device.

Companies could use the UPX equipment to automate corporate network services offered to employees. New hires could be issued a standard package of services quickly with UPX. And as new services are developed or employees need access to additional existing services, it could speed deployment, ISPSoft says. These steps could be centrally provisioned by UPX by one person, the company says.

Multivendor provisioning is gaining more attention as makers of new hardware technologies turn to other vendors to integrate their provisioning software in a single package. For instance, another start-up, Emperative, is doing this for DSL and optical networks.

"Rapid provisioning across multivendor platforms has been an obstacle to customized services," says Tere' Bracco, an analyst with Current Analysis. "When enterprises want a service, they want it now."

Without having to write these provisioning platforms themselves, equipment can be made more manageable more quickly than it could if each company or service provider had to build these platforms from the ground up.

ISPSoft's backers include Lucent's venture capital arm. Lucent and ISPSoft have been working for five months writing UPX interfaces for Lucent VPN and firewall products.

In addition to VPNs and firewalls, the list of services UPX could provision includes authentication, shared and dedicated hosting, and e-mail applications, as well as customer enterprise applications, ISPSoft says.

The company claims that AT&T and British Telecom have invited ISPSoft to bid on a contract to provide software that will provision VPN services.

UPX requires that individual software agents be written for it to provision gear made by particular vendors. If a service provider needs to include equipment that UPX does not support, agents for that gear can be written within three months, ISPSoft says. The company also claims compatibility with Cisco, Nortel and Interlink products, with more in development.

Software drivers can also be written to talk to pre-existing provisioning platforms that support certain services.

ISPSoft software running on a Sun or Red Hat Linux platform taps a service description database and sends out commands to provision the devices employed in delivering the service ordered.

UPX is available now and costs $50,000 to $200,000, depending on the number of different agents required.

ISPSoft: www.ispsoft.com

PROFILE: ISPSoft

Founded:	1999
Primary business:	Universal Provisioning Switch software to provision IP services.
President and CEO:	Binay Sugla
Financing:	Undisclosed amounts from Lucent, New Ventures Group and Signal Lake Ventures.
Employees:	40+
Competitors:	Cisco, Lucent, Nortel Networks, Orchestream, Syndesis

Catena says DSL is only a card shuffle away

BY MICHAEL MARTIN

WASHINGTON, D.C. — Catena Networks, a Redwood Shores, Calif., DSL equipment manufacturer, is resorting to a simple card trick to ease the rollout of DSL to remote terminals.

Catena's CNX-5 asymmetric DSL (ADSL) system, unveiled at ComNet last month, is essentially a line card replacement that lets service providers upgrade plain old telephone service (POTS)-only Lucent SLC Series 5 digital loop carrier (DLC) systems to deliver POTS and DSL on a copper pair.

By using existing DLCs instead of adding DSL access multiplexers in remote cabinets, service providers can save a bundle of money, says Bob Machlin, Catena's president and CEO.

"If you believe people want DSL and POTS, you have to be able to deploy both at an economical POTS-type cost, and this allows you to do that," he says.

The CNX-5 system consists of two card replacements. The Catena Enhanced Channel Test Unit is an ATM multiplexer card that replaces existing channel test unit cards in the SLC 5. One Enhanced Channel Test Unit card is required for each remote terminal. There are three backhaul options available for the enhanced test unit cards — T-1, T-3 and inverse multiplexing over ATM, bonding up to four T-1 links.

Once the enhanced test unit card has been installed, providers can begin replacing SLC 5 line cards with the second piece of the CNX-5 system — the Catena Enhanced Channel Unit. Each channel unit has two POTS and two DSL ports. Catena cards are distinguishable from regular SLC

See **Catena**, page 30

Telco Systems targets edge gear at enterprise

BY TIM GREENE

NORWOOD, MASS. — Telco Systems says it's making a push into the corporate market with a family of switches designed to fill a relativcly small niche.

The company, which has traditionally sold to carriers, has a new enterprise sales team that is trying to sell a series of LAN-WAN Ethernet switches called EdgeLinkT to corporations.

The EdgeLinkT series includes one model clearly designed for customer sites that nevertheless had been generally targeted at service providers for their managed-service programs.

EdgeLink T5 Compact is a nonblocking 10/100 Ethernet workgroup switch with dual Gigabit Ethernet uplinks. The switch can support up to 48 10/100 Ethernet ports and can also serve as a departmental concentrator.

Clinton Clements, a Telco Systems vice president, says the company expects to sell 90% of these newly available boxes to companies and the rest to carriers. Carriers would place one at a customer site and sell services via individual Ethernet ports. The service could be metered down to deliver bandwidth in 64K bit/sec increments, Telco Systems says.

Also aimed at the corporate market is the EdgeLink T4, a nonblocking workgroup switch that supports up to 96 10/100 Ethernet ports and also has Gigabit Ethernet uplinks. It supports very-high bit rate DSL (VDSL), which can be used to deliver high-bandwidth services over regular copper phone lines at distances of up to 4,000 feet. Telco Systems expects 70% of these boxes to be sold to companies.

Telco Systems' EdgeLink V24S VDSL switch will offer symmetric DSL capability supporting 10M bit/sec in both directions.

"It's refreshing to see someone move to the enterprise and not just sell [customer site equipment] to carriers," says Ray Keneipp, an analyst with The Burton Group. But he says the attraction will be limited because other vendors, such as Cisco and Nortel Networks, sell a more complete line of enterprise gear. "They [Telco Systems] try to differentiate themselves with VDSL, but that is not for wide use in enterprises."

Telco Systems says companies can use VDSL on campuses that need high-speed connections and have copper, but not fiber connecting buildings.

Once a company has bought a Telco Systems switch, Telco Systems will try to encourage the customer to buy even higher capacity equipment, such as packet-over-SONET gear it's developing, says Jim Sevier, Telco Systems' director of enterprise business development. The EdgeLinkT5 Pro will be previewed at the SuperComm show in June.

The company is also introducing symmetric DSL capability supporting 10M bit/sec in both directions, a configuration suitable for Ethernet LAN extensions. The company is incorporating this technology in its EdgeLink V24S VDSL switch and EdgeLink NTU customer-site devices.

Telco Systems has plans for T6 through T8 models of its EdgeLink line that will be stackable to provide higher capacity.

The T8, not due out until early next year, will support photonic switching, in which entire wavelengths of light are trunked through the equipment, the company says.

Telco Systems: www.telco.com

Catena,
continued from page 29

5 line cards by a red lever on the front of the Catena cards.

Each Enhanced Channel Unit lists at about $1,000, while the Enhanced Channel Test Unit costs about $4,000. Discounts are available for service providers placing large orders.

Catena also provides a management system with the cards. The CatenaView Element Management System provides APIs to link the CNX-5 to carriers' back-office and billing systems.

Machlin estimates that up to 20 million users could be served ADSL through SLC 5s. Catena could manufacture a product for the SLC 5 because Lucent made it an open platform in the 1980s, Machlin notes.

Catena is currently in trials with about 10 incumbent local exchange carriers, he says.

Later this spring, Catena plans to unveil a new product called a broadband loop carrier for central offices and remote terminals, which will support POTS and DSL on every port.

"Assuming consumers want both DSL and POTS, it makes sense to build something that integrates both from the ground up," Machlin says.

Matthew Davis, an analyst with The Yankee Group, says DLCs have been a big barrier to the rollout of DSL.

"A lot of incumbents said that the DLCs couldn't be upgraded, and you needed a new device to provide DSL," he says. "If Catena can bring this to market, it's a fabulous product." But the accolades will have to wait until the CNX-5 is fully tested, Davis says.

Catena: www.catena.com

FCC clarifies order that threatened to limit line sharing

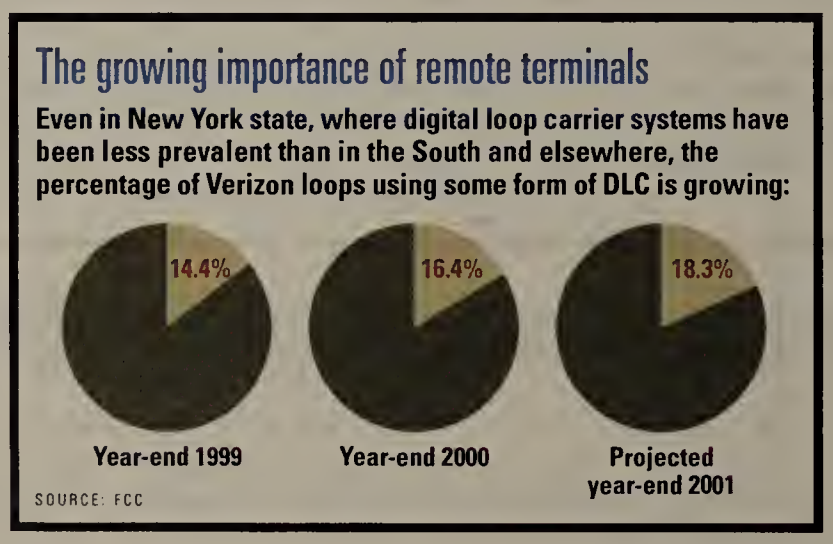
Effect is limited to voice/DSL partnerships among CLECs hitting remote terminals.

BY DAVID ROHDE

WASHINGTON, D.C. — Alternative local carriers intent on selling plain-vanilla voice service and looking for a partner to offer DSL to sell to the same end users can take heart from a ruling from the Federal Communications Commission.

The FCC ruling, issued on the last day of former chairman William Kennard's tenure, removes a loophole from the agency's earlier line-sharing order that threatened to leave some competitive local exchange carriers (CLEC) without a way to reach users for even ordinary telephone service.

Line sharing is the process under which local loop owners must divide the high-frequency and low-frequency portions of the copper loop to allow simultaneous use by different carriers offering voice and data services. The problem is that incumbent local carriers are increasingly proposing to run fiber from their central offices (CO) to remote terminals and to place their DSL multiplexing equipment there to handle the remaining copper subloop to the user.



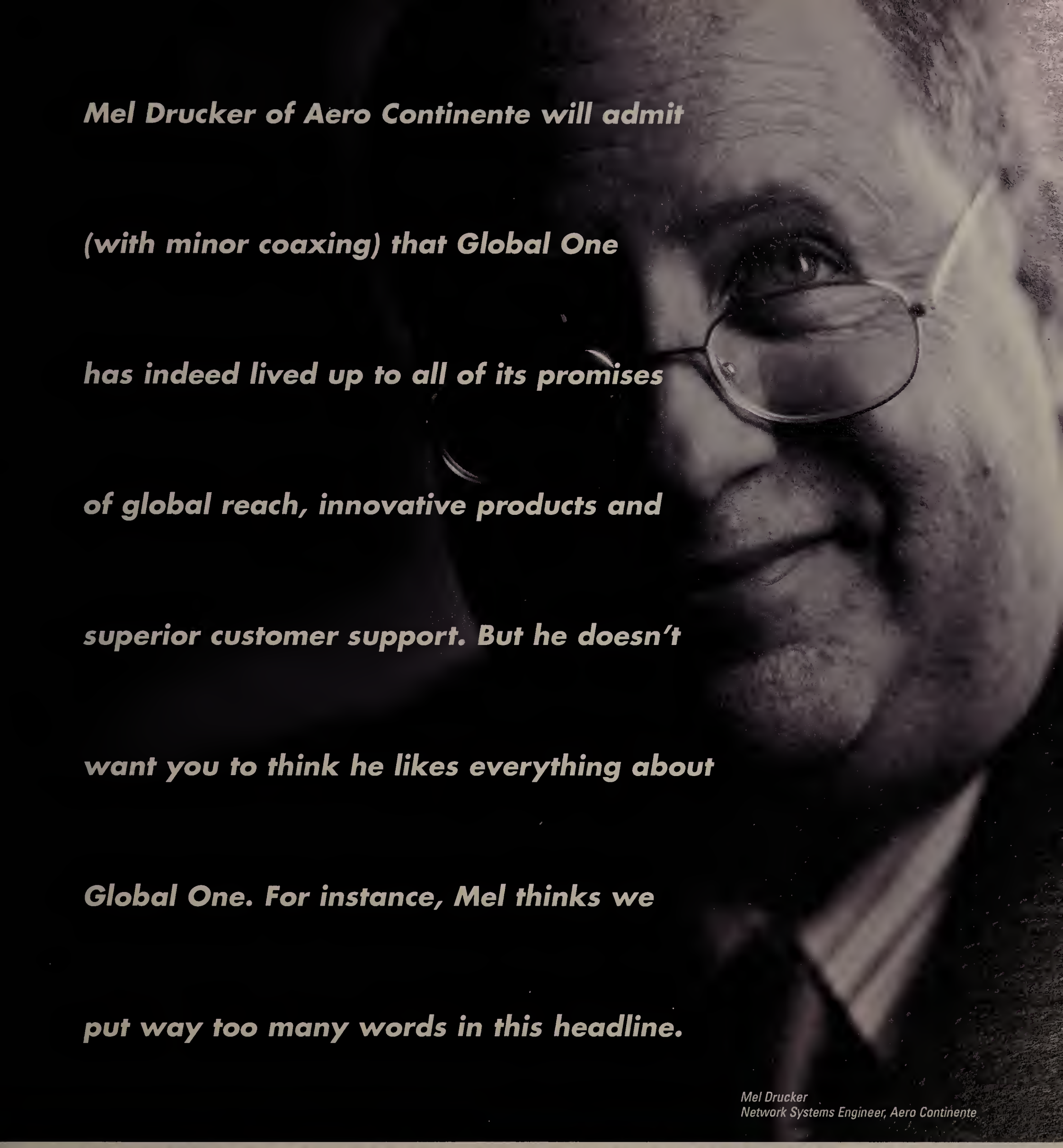
The most prominent example of such a scheme is SBC's Project Pronto, which aims to run fiber to up to 25,000 remote terminals. But the buildout of such terminals — also known as next-generation digital loop carriers (DLC) — is proceeding in other Bell territories (see graphic). According to recent CLEC petitions to the FCC, this has left the Bells free to reject line sharing on the grounds that the copper loop doesn't run all the way from the CO to the end user.

The FCC ruling clarifies that line sharing must apply equally in any hybrid fiber/copper buildout. The ruling principally benefits two types of CLECs, says Jonathan Askin, general counsel for the Association for Local Telecommunications Services, a CLEC trade group. One is smaller voice-oriented CLECs looking to cut deals with independent DSL providers that otherwise would have to partner only with Bells for their line-sharing projects.

The other beneficiary group consists of AT&T and WorldCom, which in some areas use a variation of Bell voice resale, called the "unbundled network element platform" to build mass-market share in partnership with DSL providers for consumer data offerings.

Askin says the ruling does not address the key issues of most larger, facilities-based CLECs that have been warring with SBC over fiber-fed next-generation DLC buildouts. These CLECs are pressing the FCC to order greater collocation rights in remote terminals and COs, more diverse trunking options using multiple ATM classes of service, and the right for CLECs to take over entire CO-to-premises copper loops that have been decommissioned by Bells.

Because new FCC Chairman Michael Powell has just taken office, Askin says he does not expect a comprehensive ruling on these and other issues until the spring or summer.



When you run an airline, reliability is everything. That's why Aero Continente uses Global Frame Relay for telecom services connecting South America and the Caribbean to their U.S. hub in Miami. They use voice over frame to reduce long distance costs and rely on Global IP Direct for fast, dependable Internet access. Mr. Drucker also said (with no coaxing) the network has never gone down in its 13-month history. For a man of few words, that's saying a lot. For more information, please visit www.globalone.net or call 1-877-460-4141.

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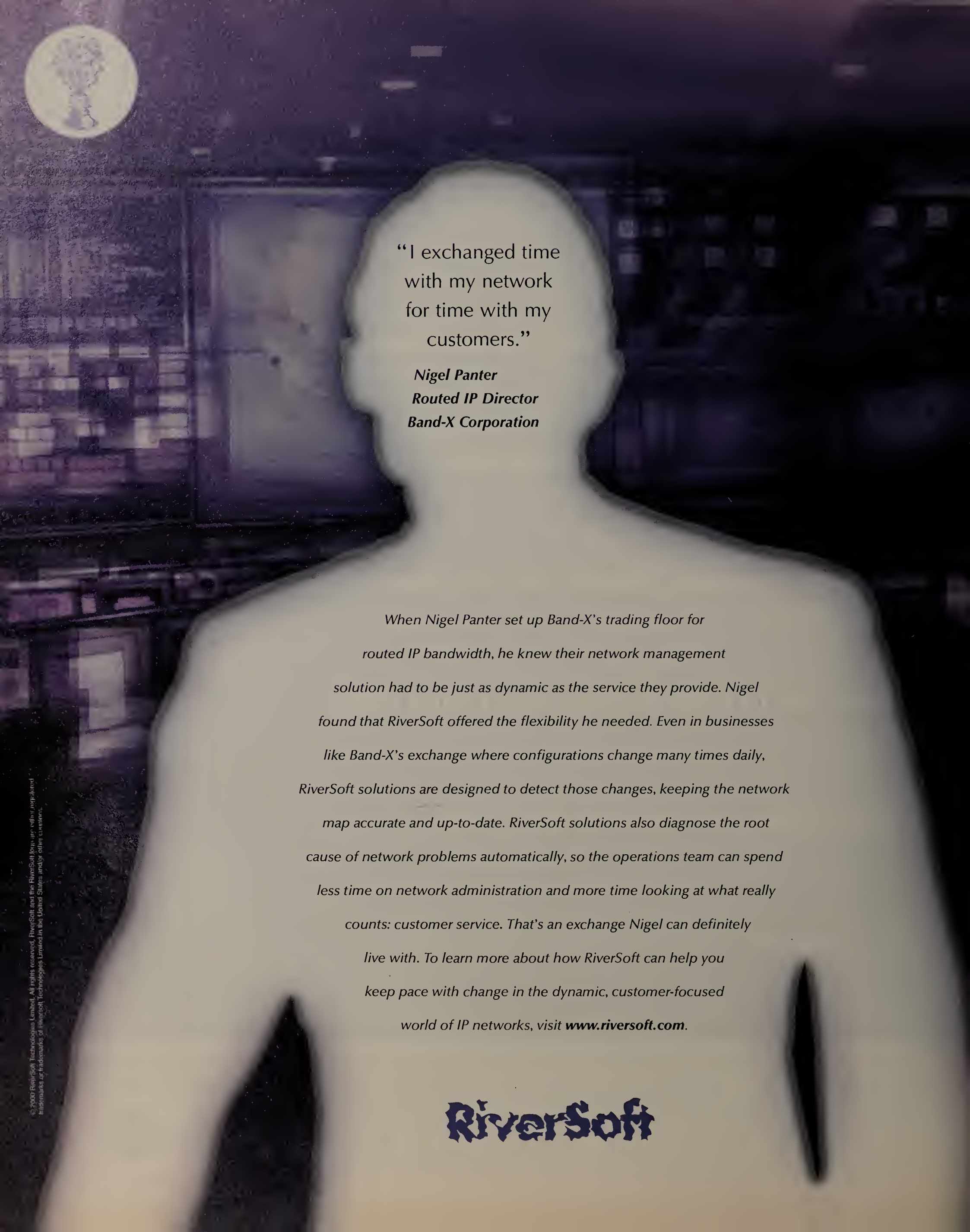


When Nigel Panter set up Band-X's trading floor for routed IP bandwidth, he knew their network management solution had to be just as dynamic as the service they provide. Nigel found that RiverSoft offered the flexibility he needed. Even in businesses like Band-X's exchange where configurations change many times daily, RiverSoft solutions are designed to detect those changes, keeping the network map accurate and up-to-date. RiverSoft solutions also diagnose the root cause of network problems automatically, so the operations team can spend less time on network administration and more time looking at what really counts: customer service. That's an exchange Nigel can definitely live with. To learn more about how RiverSoft can help you keep pace with change in the dynamic, customer-focused world of IP networks, visit ***www.riversoft.com***.

RiverSoft

Enterprise Applications

Intranets, Messaging/Groupware, E-commerce, Security, VPNs, Network Management, Directories

Briefs

Rackspace Managed Hosting says it has the cure for firms worried about uptime because of California's power drought: head to Texas. The hosting firm is waiving setup fees on servers moved from California to its San Antonio data center before March 1. While Rackspace touts the "environmental oasis" where its data center is located, it says geography shouldn't be an issue because companies can access servers remotely on a 24-7 basis and have complete access to applications. Rackspace also provides 24-7 technical support and a 100% hardware guarantee, it says.

Rackspace: www.rackspace.com

StorageNetworks, Sun and **Exodus Communications** are teaming to offer managed storage services that will be delivered and hosted at Exodus data centers, the companies have announced. The new product will be powered by StorageNetworks and based on Sun's StorEdge arrays and Sun Enterprise servers and software.

StorageNetworks: www.storagenetworks.com; Sun: www.sun.com;Exodus: www.exodus.com

Bowstreet has announced Business Web Factory Version 3.0, the third version of its Java-based e-business application for Web-based supply-chain interaction and partner extranets that can store information from databases and application servers as XML. The latest version, which starts at $250,000, adds a Warehouse repository component based on XML data processing specification Universal Description, Discovery and Integration to store profiles of business partners, plus support for SNMP interfaces with management applications from Computer Associates and Tivoli.

Bowstreet: www.bowstreet.com

Blue Martini mixes CRM package

Software lets users cull, organize data from multiple resources.

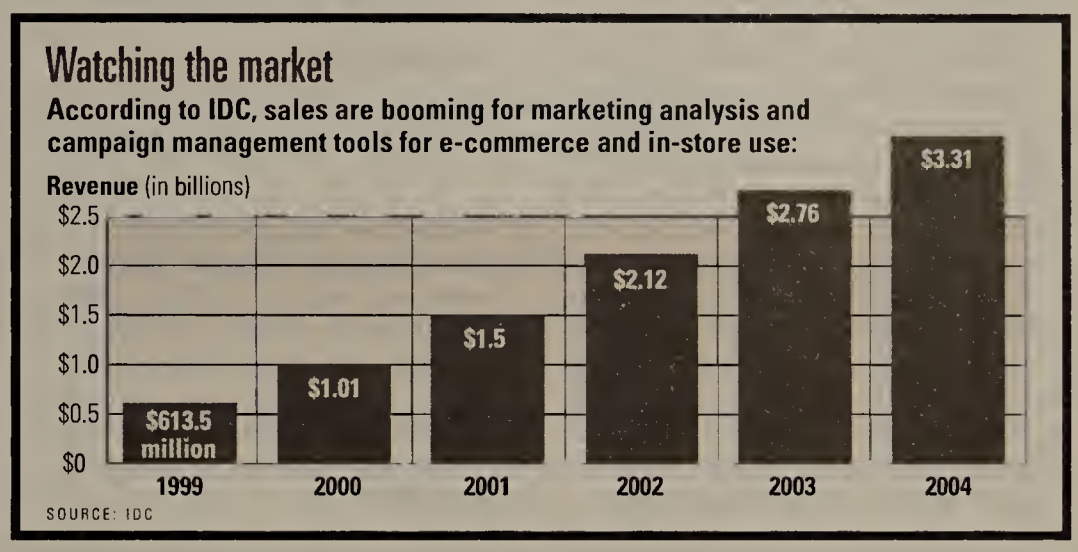
BY ELLEN MESSMER

Blue Martini Software, known for its signature e-commerce catalog software, is now serving up a different mix: software tools for managing e-mail advertising campaigns and analyzing sales data from Web and in-store sales.

Next month Blue Martini plans to ship Blue Martini Marketing server software for Windows NT or Unix servers. The tools will let users organize customer data by extracting it from Oracle or SQL Server databases to issue reports such as customer demographics or item preferences.

The software will bring Blue Martini into competition with two other relative newcomers, E.piphany and Broadbase, which sell their brands of customer relationship management (CRM) tools for e-commerce. The "eCRM" focus is fueling the growth in what market analysts call marketing automation software, which, according to research firm IDC, stood at $613 million a year ago but is expected to reach $3 billion by 2004.

The Blue Martini online analytical processing (OLAP) tools not only retrieve information from Blue Martini databases, but also combine data from other e-commerce applications, including BroadVision's One-to-One and Siebel's Call Center applications.



"Marketing organizations can combine data from these sources and with data analysis manage an outbound e-mail campaign to target a message to a buyer," says Michele de Haaff, senior product manager at Blue Martini.

Gymboree, which sells children's clothing in stores and through its Web site — which is based on the Blue Martini e-catalog software — just started testing the Blue Martini Marketing tools.

"We tried the e-mail campaign tool so we could send out e-mail on sales on children's clothing to households with children in the right age group," says Susan Neal, Gymboree's vice president of business development.

"That's the only one we've done so far. But for data mining purposes, we expect to be able to combine the Blue Martini customer data from the Web with information about sales from our store point-of-sale devices," she adds.

The Blue Martini Marketing tools, which start at $250,000, conduct work by means of a Web browser, but proprietary Blue Martini client software that comes with the package allows for more in-depth data-mining capability than a simple browser.

"Typical marketing people would use the browser to find information they need, while the proprietary client would be for the data-mining experts focused on more in-depth reports," de Haaff says.

Blue Martini: www.bluemartini.com

BMC chief assesses management software arena

NetworkWorld Q&A

After a year of poor sales and lost revenue, BMC Software showed some incremental improvements with its recent earnings announcement. Newly appointed BMC CEO Robert Beauchamp spoke with Network World *Staff Writer Denise Dubie about those results and a look at BMC's future.*

BMC's earnings show revenue down from the same time last year, yet up from last quarter. To what do you attribute the decrease in revenue?

Last year was pretty ugly for all the software companies, and if you go back and look there's not a whole lot of results that went up and not only [in terms of] enterprise software [vendors], but the high-tech [industry] in general. It was a nasty year, and we were certainly caught up in that downturn that so many other companies participated in. There was also likely a wave of investment in e-business, and our customers typically lag in management investment in investing on new infrastructures and new technologies, so when new technologies come out it's some time after that that they begin to invest in management.

The good news is that that wave appears to be beginning now where they're coming back and saying we now have to make all this new e-business technology and applications that we acquired solid, mission-critical, available and perform well. And that's where BMC comes in. So there's certainly some computing capacity bubble that needed to be burned off, and there's evidence to suggest that's happened. There's also that

See **BMC**, page 34

BMC,
continued from page 33

wave phenomenon that I believe we're now at the beginning of as more customers look at systems management.

Has BMC done anything differently this past quarter because your earnings report shows improvement?

Yes, we're always trying to improve across all the organizations. Clearly there's been some good sales force execution: I'll point to Europe as one example. . . . In my 12 years, I've never seen the international organization so well run and so well managed. We've seen better execution across the board in sales.

Do you think there's still a strong market for BMC's staple products?

One of the real opportunities we have, even as large and as successful as BMC is, is we've got so [many customers still] available to us. It's a huge opportunity for us just to get back to existing customers to help complete their product line. There are so many customers that don't have our product, and there are so many [customers] that have some of our products but not all. There's no lack of demand or lack of market for our products. Year over year we grew over all of our product families, both distributed and mainframe. The arrows are pointing up quarter over sequential quarter.

> ***"[Last year] was a nasty year, and we were certainly caught up in that downturn . . ."***
>
> Robert Beauchamp, CEO, BMC

Will revenue from other areas, such as professional services, be able to sustain BMC?

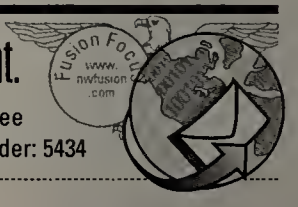
We have achieved a level of trust with the global 2000 companies so that many view us as their entrusted advisers to see that their enterprises — and that means their businesses — stay up and perform well. But more and more, our customers do not have the expertise, the time or the desire to develop best practices for systems management. . . . Professional services is the key to that. We bring in our technology, we bring in our expertise, and we quickly get the customer's enterprise management environment up and running and optimized.

Analysts have said BMC's success is more in the mainframe arena than distributed systems, and that future success may be directly tied to BMC's new support for IBM's zSeries 900 hardware platforms and z/OS operating system. Do you agree? What will it mean to BMC?

The zSeries is an important new server. It's basically the replacement technology for IBM's existing mainframe platforms. And it will be our key IBM mainframe platform going forward. Clearly that is an important platform because it's a very important platform to the global 2000.

Can BMC stay ahead of the economic curve with its revenue is so closely tied to mainframe or large systems sales?

They are tied to it, but I'll just point out this quarter mainframe revenue was slightly more than half, license revenue slightly more than half, but last quarter it wasn't. Last quarter, distributed systems, Unix and Windows platforms outperformed the mainframe. So we're really fairly well-diversified right now. So that protects us from some swings on any particular platform somewhat, but if any of the platforms suffer or thrive we can participate in that. We are more diversified than we used to be. ◪



'Net Insider . Scott Bradner

ADVERTISING VULNERABILITIES

The headlines were scary. For example, Dow Jones trumpeted "Researchers warn Internet's core vulnerable to attack." And indeed there were bugs in the software used in most of the world's domain name servers. These bugs make it possible for intruders to take full control of a server. The intruders could then disable the server or modify its data to misdirect Internet users when they attempted to contact an Internet site.

Most major news outlets picked up the story, and it caused a momentary blip in the regular diet of real and imagined non-Internet news. The story also reignited an old debate about how news of Internet vulnerabilities should be propagated.

The notice of the vulnerabilities first publicly surfaced on Jan. 26. That's when Internet Software Company's (ISC) Paul Vixie, whose firm developed the software, sent a note to a mailing list for network operators (www.nanog.org/mailinglist.html). The Computer Emergency Response Team (CERT), the official body addressing Internet security issues, published an alert the following Monday (www.cert.org/advisories/CA-2001-02.html).

But, as it was clear from the list of eight vendors' specific vulnerabilities at the end of the CERT bulletin, someone had told these vendors long enough before Vixie's public announcement for some of them to prepare fixes (these companies include versions of ISC's software in their offerings). When some readers of the North American Network Operators' Group (NANOG) list figured this out, they were quite incensed, indicating that a wider notification should have been made as soon as the vulnerabilities had been found.

The tension is not new between people who think the prudent thing to do when a security problem is found is to notify vendors in private so the vendors can get fixes ready before the news gets out and those who think it's best to tell the world about such a problem from the start to force vendors and users to upgrade their systems. I've been watching this situation since the mid-1980s. The debate can, and in this case did, get bitter, as can be seen in the NANOG mailing list archives.

The discussion this time was made more complicated because Voxie's company is a not-for-profit corporation providing the Internet community with a tremendous service. Thus anyone criticizing him and ISC would seem ungrateful for the work that they do.

But they did the right thing. I would like to have information on vulnerabilities be distributed as quickly as possible so they could get fixed, but feel it would be a reckless disregard of Internet safety to publicize a security hole so the bad guys can exploit it before the good guys have ways to plug the hole. I admit to having some problems with the slowness at which the CERT occasionally works, but if the fundamental idea is to protect the Internet, it's better to be sure the cure is in place before releasing the pathogen.

Disclaimer: Harvard and slowness are well-acquainted concepts, but the above request for speed is mine and not the university's.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

Users warming to outsourced intrusion detection

BY ELLEN MESSMER

Putting in technical safeguards to spot network intruders or detect denial-of-service attacks at e-commerce servers is a prudent idea. But if your staff doesn't have the time or skills to install and monitor intrusion-detection software, you might consider outsourcing the job.

Intrusion detection is the latest security service to be offered on an outsourced basis, usually by the types of ISPs or specialized security firms that have been eager to manage your firewall and authentication. While outsourcing security means divulging sensitive information about your network and corporate business practices, some companies say they have little choice but to get outside help given the difficulty of hiring security experts.

Memorial Care of Los Angeles operates a private T-1 network for its five hospitals and gives doctors network access from their homes or offices using a VPN connection. Memorial Care hired Pilot Network Services to provide Internet access, VPN, router and firewall support, antivirus content filtering, plus intrusion detection.

"Pilot apprises us of all attacks occurring on our network address and any type of attempted intrusion through daily reports or notification," says Scott Cebula, executive director of IS at Memorial Care. "We see 100-plus incidents on a daily basis, mostly 'kiddie hacker' attacks using the available tools out there. It's not sophisticated, but someone is rattling the doorknob."

Counterpane CTO Bruce Schneier says managed intrusion detection requires companies to share a lot of information about internal networks.

Memorial Care outsourced this security guard function to Pilot primarily because it's hard to find skilled technicians with specialized knowledge about intrusion detection who will work round-the-clock, Cebula says. Outsourcing security costs Memorial Care "less than six figures" each year, he adds.

Pilot doesn't monitor Memorial Care's internal network, but the hospital system has deployed its own homegrown intrusion-detection software on critical servers to issue alarms about unauthorized access attempts.

Allowing managed security services deep into the network remains controversial.

"We opted not to go to managed security because you're forced to give away the keys to the castle in some respects," says Jeff Hormann, director of IS at Metromedia Fiber Network (MFN). Sensitive information might include what employees or trading partners are allowed to use the intranet and where critical corporate data is stored.

Instead of outsourcing, MFN is looking at deploying Internet Security Systems' (ISS) intrusion-detection software, called RealSecure, on its intranet and staffing a round-the-clock data monitoring center on its own.

NET SECURITY SERVICES

Some customers are convinced they have no choice but to hand over security management reins.

While still in the intrusion-detection software business, ISS last year branched out into managed security services by opening data centers in Atlanta and Detroit to provide managed firewall, VPN and intrusion-detection services. ISS has centers in Sweden, Italy and Brazil, and in April plans to open one in Japan, says Mark Hagen, president of the ISS managed security services division.

For the intrusion-detection managed service, corporations have to deploy the ISS RealSecure Network Sensor software in their internal network to remotely monitor traffic across LANs or behind the firewall. Each sensor's output, once encrypted, is transmitted across the Internet to consoles within the ISS data center, where employees watch for reports of suspicious activity or denial-of-service attacks.

Later this year, ISS plans to add host-based monitoring of servers, which would require users to buy into the RealSecure Server Sensor software. ISS often partners with telephone companies and Web-hosting providers, such as Exodus and network integrators or consultants, such as PricewaterhouseCoopers, to market its managed security services. Prices per month typically are between $1,800 to $3,000 per sensor. ISS claims to have 1,500 customers using its managed security services, which accounted for almost 10% of ISS' $192 million in revenue last year.

MyCIO.com, the Network Associates, Inc. (NAI) application service provider (ASP) division for antivirus and firewall software, has quietly begun managing its customers' intrusion-detection systems, too, because the demand was there, says Mark McArdle, a MyCIO.com vice president. The ASP technical staff aren't going onto the customer site to manage only NAI's CyberCop intrusion-detection software, but also competing products from companies such as ISS and Cisco. "It's a growth area for us," says McArdle, who adds that outsourcing services typically cost a few thousand dollars per month.

The Yankee Group projects that managed security services — of which intrusion detection is the latest phenomenon — more than doubled from $200 million in 1999 to $450 million last year. By 2005, the market is expected to reach $2.6 billion, fueled by the trend toward outsourcing internal LAN security to professional security firms as "virtual employees."

Counterpane Internet Security, the managed security services firm founded last year by cryptography expert Bruce Schneier, has a distinctly different approach to intrusion monitoring than ISS.

Counterpane built a "black box" device called Sentry it installs in the customer's network to aggregate data output from routers, servers, firewalls and intrusion-detection software — including that from ISS and Tripwire. "Cisco routers and Unix servers are all very 'chatty,' producing megabytes of information each day," Schneier, Counterpane's CTO, says. "Sentry collects all that."

Sentry then transmits that datastream in encrypted form to the Counterpane data center staffed around the clock. Counterpane now has two centers in Mountain View, Calif., and Chantilly, Va. "We do need information about the customer's network for this," Schneier says. "If you went through a network expansion, we need to know there's a change. Otherwise, we don't know what's happening in the network."

Counterpane contacts the corporation to report suspicious findings or an attack in progress, but doesn't take further actions, such as shutting down access. Those steps are up to the corporation because Counterpane is there as a 24-7 remote monitoring alarm service, Schneier says.

Cost typically runs $10,000 per month, and Counterpane services are offered through ISPs and Web host providers, including Exodus and Loudcloud.

While the big fish, such as AT&T and IBM, are known to offer managed security services that include intrusion detection, the water is becoming more populated with minnows, too. Sunnyvale, Calif., start-up eNet Secure provides intrusion detection for PBX equipment, charging $5,000 per month, with the Air Force and NASA as its first two customers. ◪

Technology Update

An Inside Look at the Technologies and Standards Shaping Your Network

Ask Dr. Intranet

By Steve Blass

We maintain a Linux Web server that's hosted by our ISP for our extranet. We run Windows 2000 on the desktop and have Red Hat Linux installed on a second hard drive partition for testing Web site changes. We're tired of dual-booting between operating systems and would like to know if VMWare for Windows will let us run the Linux Web server on the network at the same time we're using Windows applications.

VMWare supports LANs for Linux in virtual machines as if the Linux system were running on its own physical server. There are options for installing Linux on a virtual disk managed by VMWare or installing a virtual machine that boots from your Linux partition. Back up your system first if you plan to configure VMWare to use your raw disk. Installing VMWare is straightforward. If you download the evaluation version from www.vmware.com, you will receive an e-mail with a license key attached in a registry script. Once VMWare and the license key are installed, you can configure a virtual machine. Start VMWare and follow the prompts in the configuration wizard to perform a guest operating system installation. Install to a virtual disk the first time to become familiar with the tools before trying to configure VMWare to boot your existing Linux installation, because hardware components may appear different to Linux through VMWare than they normally do.

Blass, a network architect at change@work in Houston, can be reached at dr.intranet@changeatwork.com.

E-signatures with USB crypto-tokens

BY PAUL BLOMGREN

The recently enacted Electronic Signatures in Global and National Commerce Act grants electronic signatures and contracts the same legal weight as handwritten signatures on printed documents and will have a significant impact on the way business-to-business and business-to-consumer transactions are performed.

While the new law will almost certainly accelerate the use of digital signatures for all sorts of e-commerce transactions, the law does not specify a single de facto standard technology used to generate digital signatures.

One option is the use of a Universal Serial Bus (USB) cryptographic token to generate digital signatures. USB cryptographic tokens offer an easy and secure way to generate, store and deploy digital identities for a host of e-commerce applications and transactions.

These tokens also have the unique ability to plug the security gap found in many digital signature schemes.

Two-part creation

At the heart of each digital signature lies the individual user's digital identity. A digital ID is, essentially, a two-part credential with a private key used by the owner to create a digital signature, and a public key embedded within a digital certificate that anyone can use to verify the digital signature. Private keys and public keys are mathematically matched encryption keys — whatever one key encrypts, the other key decrypts.

Digital certificates are signed documents from a trusted third party known as a certificate authority. Certificate authorities are responsible for verifying the physical identity of an individual and issuing a digital certificate to the individual, as well as verifying the state of the individual's digital certificate. Certificate authorities provide a centralized method to create and deploy digital identities, as well as revoke and reissue digital identities as necessary.

The creation of a digital signature involves two steps. First, a message digest is created against the original message via the hash-function method. A hash function is a mathematical calculation that reduces an original message to a unique 160-bit string of characters — the message digest. No two messages will have the same message digest unless they are absolutely identical. The hash function is a one-way process; a message cannot be recreated from a message digest.

The second step is the creation of the digital signature. This step is accomplished by encrypting the message digest with the owner's private key. At this point, the digital signature and the owner's digital certificate are appended to the original message; the result is a signed document.

Added security

Digital signatures using public-key cryptography provide strong assurance that documents, messages and transactions have not been altered since they were signed. They also provide the ability to prove the signing operation was performed using the private key that corresponds to the attached digital certificate. But this is where public-key cryptography has its one security hole — it is only as strong as the integrity or security of each individual's private key. If security of a private key is compromised, (that is, someone other than the owner has a copy of the private key and knows its personal identification number or pass phrase) public-key cryptography falls apart.

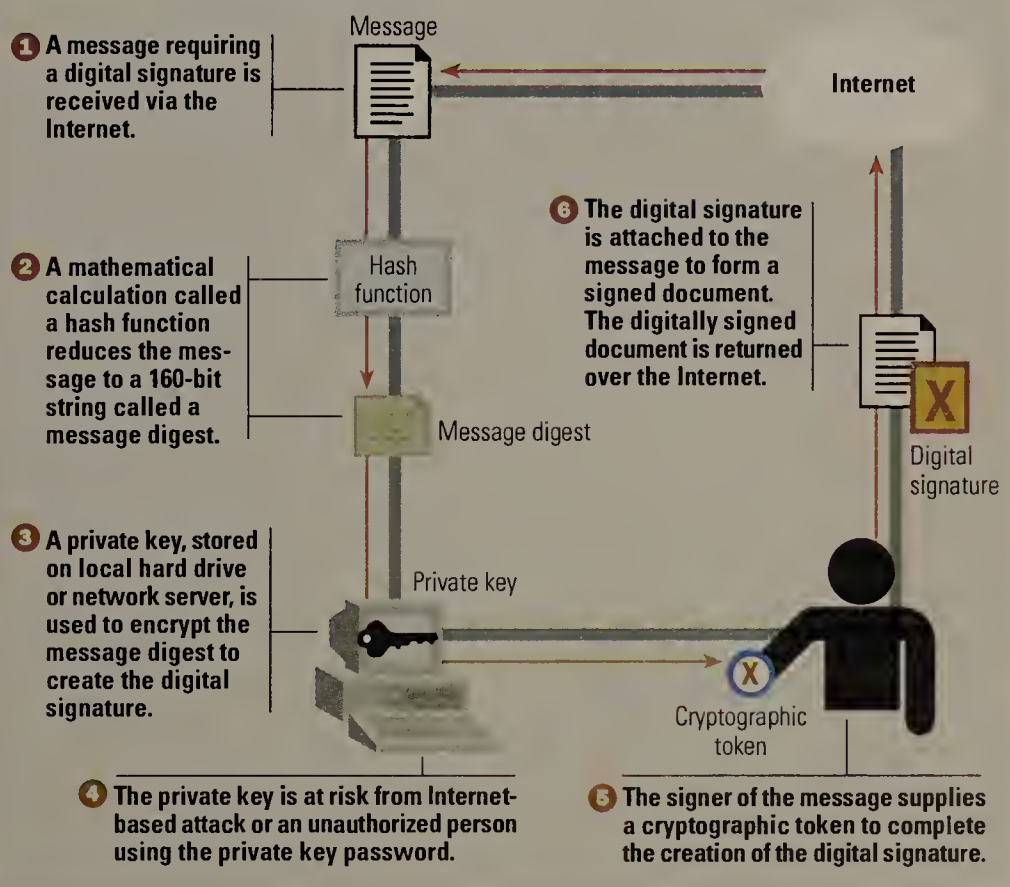
USB cryptographic tokens used in conjunction with public-key cryptography remove this security issue. USB cryptographic tokens provide a secure means of generating and storing public and private key pairs, as well as performing the actual signing operations. So private keys are never exposed to attack by hackers, viruses or even by users trying to subvert security issues.

Blomgren is group manager and product manager of the iKey product line at iVEA Technologies, a Rainbow Technologies company. He can be reached at pblomgren@rainbow.com.

HOW IT WORKS

Cryptographic token secures e-signature

The use of a cryptographic token provides additional authentication when creating a digital signature with a private key.



Got great ideas?

Network World **is looking for great ideas for future Tech Updates. If you've got one, and want to contribute it to a future issue, contact Features Editor Neal Weinberg (nweinberg@nww.com).**

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Gearhead . inside the network machine . Mark Gibbs

WHAT'S IN A NAME SERVER?

We've been pondering Novell's struggles to stay afloat (though perhaps that's a little more dramatic than the company's actual situation), and we think the company's undeniable technical superiority and marketing deficiencies notwithstanding, the problem is that directory services are hard to sell.

The reason for that is few firms need anything that sophisticated to find out where things are.

Indeed, the world in general gets by nicely with what is one of the simplest of directory services: the Internet's Domain Name System (DNS).

And that is the lead-in to the next few Gearhead columns: We're going to look at the wild world of DNS (to be honest, it isn't really wild but we thought you might be excited by the promise of "wild" technology).

Now, even though most of us use DNS every day, few of us have more than a sketchy idea of what DNS actually is. What most people know is that DNS converts names into IP addresses and vice versa. Needless to say, there's a lot more to DNS than that.

DNS is a relatively simple distributed database — on any given server some records are local and can be modified by those with the correct privileges, while other records are read-only replicas of records on remote servers.

This means that DNS has mechanisms for replicating records between servers. However, given the size of the Internet, no single server can have a copy of every record, and even if it could, at any given moment at least one record would be out of date. We'll come back to this problem in a second....

The DNS database is an inverted tree with the root of the tree resident on what are called the root servers. The root servers also store the nodes (records, as we have called them so far) of the next level down the DNS tree — these nodes are the first-level domains, more commonly called the top-level domains or TLDs (.edu, .gov, .org, .net and .com).

The nodes below the TLD nodes are called (bet you figured it out already) second-level domains. Thus, in the gibbs.com address of my evil twin, ".com" is the TLD and "gibbs" is the second-level domain name.

The third-level domains and below are managed by servers based in ISPs or corporate networks.

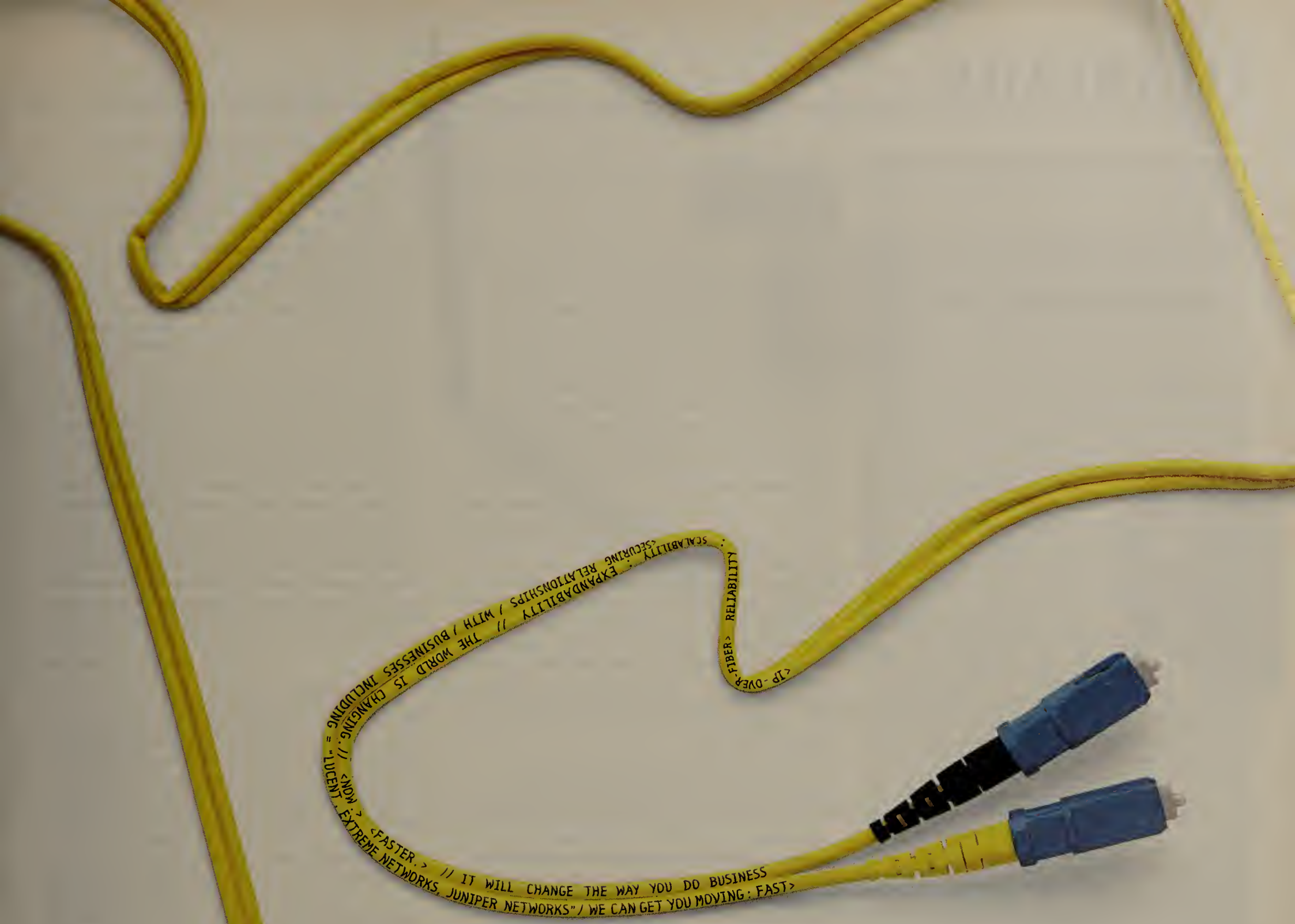
Now organizations can use DNS internally as a private naming scheme, in which case the entire DNS database might be set up on a single machine. On the Internet, the traditional TLDs and second-level domains are managed by Network Solutions (acquired by VeriSign in 2000).

DNS is based on a client/server architecture. Name servers are the server part, and "resolvers" are the name for the client side.

For example, when you point your copy of Internet Explorer at www.gibbs.com, your browser invokes a set of library routines that act as a resolver and send a request to return the IP address associated with the name submitted.

When the server receives the request, it may know the answer (gibbs.com is 63.207.158.10) or it may not (this is the problem of no server being able to know about all records or have accurate information). If the DNS server can't resolve the query, it refers the request to another DNS server — next week we'll look at how this referral is handled.

In the meantime, you can refer to gearhead@gibbs.com.



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Editorial

Start-up wants to network Bluetooth wireless PANs

Although some skeptics question whether the Bluetooth movement will ever succeed, the company that took home the ComNet 2001 most innovative product award two weeks ago is banking on that success.

Norwood Systems is a U.K. start-up developing software that will do for Bluetooth personal-area networks (PAN) what Novell did for departmental LAN islands — stitch them together into cohesive enterprise networks.

Bluetooth is a wireless specification being promoted as a way to eliminate cables by 3Com, Ericsson, IBM, Intel, Lucent, Microsoft, Motorola, Nokia, Toshiba and 2,000 other firms. The radio-based technology, conceived by Ericsson, lets Bluetooth-enabled devices within 30 feet of each other communicate at up to 1M bit/sec.

That speed is expected to be cranked up to between 2M and 10M bit/sec in Version 2.0 of the spec, which should be released year-end.

If the speeds increase and Bluetooth radio components drop in price from $20 today to $5 as they're supposed to, proponents say vendors will add Bluetooth support to everything. That means, among other things, you will be able to connect your laptop to the Internet through your cell phone without hooking one gizmo to the other.

Norwood takes that a step further, envisioning entire Bluetooth-enabled office environments where you can cart your phone, laptop and PDA around and stay plugged in.

The vision, of course, depends on the widespread adoption of Bluetooth. Presuming it becomes pervasive, Norwood's Enterprise-Mobility software will make it possible for mobile users to piggyback on different PANs as they move about.

With the Norwood scheme, office PCs become cell basestations, each of which can support three two-way conversations. Where PC coverage is light, dedicated Bluetooth basestations can be added.

The company says beta testing is scheduled to start next month, and the first Norwood products will be available by mid-year. Ernst & Young has been identified as one early user.

Obviously Norwood is making a leap that Bluetooth is here to stay, which may be presumptuous given lingering cost and security concerns. And although this approach isn't going to appeal to everyone, an office without wires has its appeal.

— John Dix
Editor in chief
jdix@nww.com

Message Queue

VALUABLE INFORMATION

In his Jan. 22 letter to the editor, Dean Collins complains that your "Top 10 Viruses" story encourages hackers to create more viruses. From my point of view, I appreciate information about the most prevalent or most destructive viruses. Those of us who must safeguard a community of users from security threats need to know what we are up against and what might be coming at us next. Perhaps a few hackers see an opportunity for publicity, but information for timely prevention is invaluable.

Gil Hennon
Memphis, Tenn.

HEAVEN SENT

Regarding Kevin Tolly's column "Verizon DSL 2: Descent into PPPoE Hell" (www.nwfusion.com, DocFinder: 2844): I have had DSL for more than a year now through EarthLink, which also uses PPP over Ethernet (PPPoE). However, like Tolly, my connection also goes through Verizon, which is my local phone company. Like Tolly, I have had many problems with WinPoet, the package Verizon uses to implement PPPoE.

A few months ago, LinkSys (www.linksys.com) announced a DSL router. The firmware is preinstalled and is accessed through your Internet browser. It is very easy to configure. The router supports PPPoE much better than WinPoet, and is very reliable. As a bonus, if you purchase a multiport router, you also get a network hub, all with Internet sharing, Network Address Translation and some firewall properties.

LinkSys upgrades its firmware regularly, and the last few versions support keeping your PPPoE connection alive even when your computer is off. Uninstalling WinPoet was one of the happiest activities I've performed on my computer.

Waguih Boctor
Arcadia, Calif.

LIFE LESSON

Your feature "Harvard Pilgrim's near-death experience" (www.nwfusion.com, DocFinder: 2845) was excellent. I was part of a group working with Pilgrim on an interface when the merger occurred. When I heard about the system compatibility issues from Pilgrim's IS staff, I wondered how they would make it work. I've used the article as a lesson for IS management.

Pamela Brosseau
Technology engineer
South Weymouth, Mass.

A TASTE OF GINGER

Regarding Paul McNamara's column "Don't dismiss 'What is it?' mania" (www.nwfusion.com, DocFinder: 2846): Ginger is an inexpensive home-appliance monitoring device that connects directly into a standard power outlet. A Ginger-enabled device can then be plugged in and monitored by a service or via a Web interface. This is not a new concept, but the communication part has always been the bugaboo. Dean Kamen's breakthrough isn't in the product, but the use of power lines as an existing communication infrastructure.

Steve Smith
Erie, Pa.

NO SERVER NEEDED

"Novell upgrades Single Sign-on" (www.nwfusion.com, DocFinder: 2847) is a good article, but the last paragraph would lead many to believe that you need a NetWare server to house Novell Directory Services (NDS). With NDS 8.5 eDirectory, you no longer need a NetWare server; you can run NDS on Unix, Windows NT or Linux. Personally, however, I would rather have the NetWare server.

Jim Golden
Senior systems engineer
CBQ, Inc.
Baltimore

TRUST NO ONE

Regarding the article "Windows Media Player 7 opens system for hackers" (www.nwfusion.com, DocFinder: 2848): I agree with Microsoft: At this stage of the game, everyone should know and understand that downloading anything from trusted or untrusted sources is risky at best. The user makes the decision.

Anthony Davis
Aurora, Colo.

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

This cartoon unexpectedly quit due to a denial-of-service attack.

Venture Over the Horizon . Kevin Fong

INVESTMENT OPPORTUNITIES IN THE YEAR AHEAD

Federal Reserve Chairman Alan Greenspan may have declared that U.S. business growth has slowed to zero, but when I look at the year ahead, I find a number of bright spots for venture investment. The debate about using Ethernet as a transport solution for delivering optical services to metropolitan-area networks will heat up this year. So-called Ethernet local exchange carriers (ELEC) such as Yipes Communications are generating a lot of excitement.

These companies lease fiber rings in metropolitan areas and use high-speed Ethernet switches and routers to deliver bandwidth to their customers. Optical Ethernet still lacks the reliability and quality of service of SONET or ATM, but start-up companies such as Lantern Communications, Atrica and Aura Networks are tackling these deficiencies from the hardware side. At the same time, the IEEE is working to make the Ethernet protocol more suitable for use in the metropolitan and the wide areas. The arrival of 10G Ethernet later this year will extend the reach of Ethernet, making it more applicable for WAN use.

Many new DSL local exchange carriers (DLEC) — alternative carriers selling DSL technology — are running out of money, and I expect a wave of consolidation. The financial troubles of the DLECs, combined with the problems of provisioning DSL, have lent credence to arguments for optical Ethernet, which has the potential to offer speeds of five to 10 times the speed of DSL at one-third of the investment.

Venture capital is continuing to flow into optical network start-ups, particularly those focused on creating order-of-magnitude price/performance improvements over fiber-optic lines. For example, one Mayfield investment, start-up Cierra Photonics, recently was able to raise $40 million in second-round funding.

Storage will also be a big area for investment and innovation. Spending on storage-area networks and on network-attached storage (NAS) will be well ahead of that for legacy servers. In particular, NAS is driving the development of new classes of equipment that can support networking and storage, becoming the intelligent hub of corporate computer systems. As a result, spending on data storage products will nearly equal spending on computers themselves. Estimates are that by 2005, storage products will account for 70% of IT budgets.

Disagreement over standards will continue to bedevil the wireless world. The arguments will only become more contentious as wireless carriers upgrade to 3G or other third-generation networks. If the complexity of 3G nets can be overcome, 3G could become the foundation of the mobile Internet. With 3G, mobile phones can send pictures, video and music, and offer better ways to access Web sites.

So despite the current economic downturn, some exciting venture capital opportunities are on the horizon. Keeping abreast of the changes will help you prioritize where to put your scarce resources.

Fong is a managing general partner with Mayfield Fund, a venture capital firm in Menlo Park, Calif. He can be reached at kfong@mayfield.com.

On Security . Winn Schwartau

HUMAN ERROR: THE SOURCE OF MOST SECURITY PROBLEMS

I keep hearing over and over from information security vendors that their products will solve the woes of a corporation. If only that were true. Didn't Microsoft's recent problems prove otherwise? Someone misconfigured some servers and created a series of internal errors.

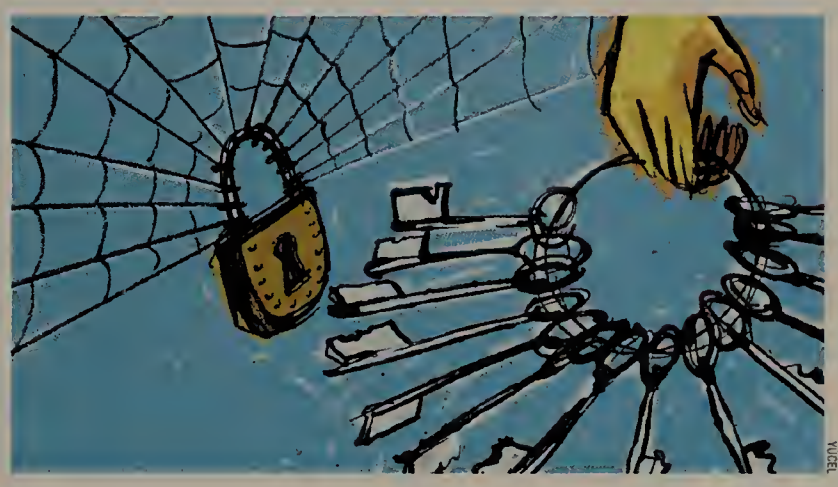
Microsoft suggested the cause of the errors could be "system or human error, but somebody could also have done this intentionally." Microsoft also said, "We don't manage the [Domain Name System] ourselves. It is a system controlled by the Internet Corporation for Assigned Names and Numbers with worldwide replicas."

Either way, people are involved. According to the reports, the network folks made a few goofs. First, they misconfigured a DNS server. Second, it seems they maintained their servers in close physical proximity, which is a huge no-no in any mission-critical design.

I'm not beating up on Microsoft here. The point is, the technology and networks that run the world and our companies today are prone to technical and human failure. Yet vendors deploy more and more complex equipment that requires more and more technical expertise to run — and is therefore fundamentally more prone to human error.

Indeed, there are plenty of security problems that occur in organizations because people security and technical security are treated differently. For example:

- Does your network security system recognize that you may have tried to log on to more than one computer at the same time? This would be a clear indication of something wrong, such as a compromised password.
- Can an employee who forgot to log off at work also log on from home using remote dial-up?
- Can an employee log on to the network from a machine he should not be using?
- Can a user bypass or remove his antivirus software (or even a corporate desktop personal firewall) without being detected?
- Is your security policy built into network management tools so that misconfiguration of a server or router is flagged and noticed?



Note that these are human-created security events that can affect the overall technical security of your organization. Whether these events occur because of a malicious insider, an overtired systems administrator or errant policy, the results are the same: improper security implementation.

Can an employee remove a hard disk, or add a ZIP drive or CD-R to a desktop without anyone noticing? Can you monitor, at the desktop, what the employee is doing — within reason — to enforce security policy?

What about physical security? Many organizations use mag-stripe or other two-factor authentication devices to gain access to buildings, floors and specific computer rooms or offices. Many of these systems are increasingly sophisticated and can track someone's movements throughout the day.

So what about correlating the network management data with the physical management data with desktop security data to form a truly accurate picture of what's going on? Wouldn't it be great to know if Jim is identified as using his desktop computer, yet the physical security logs say he hasn't been in the building all day?

Several classified U.S. government programs are doing exactly that. The military calls it "Indications and Warnings," meaning, let's look at all available data and make a rational decision. For example, data from a spy in Tehran, Internet intercepts and satellite photos might be useless individually, but when they are compared and correlated, a pattern suddenly emerges.

Business environments now include physical headquarters, virtual vaults, VPNs, telecommuters across the globe, business partners, application service providers, network operations centers and untold numbers of desktops in countless locations. To get a really good idea of whether your network or your staff is behaving, correlation among all sorts of sensors is increasingly important. To reduce your security risk, you must know where your users are, electronically and physically, and whether they are following security policy.

Schwartau is president of Interpact, a security awareness consulting firm, and author of several books, including the recent "CyberShock." He is also co-founder of NiceKids.Net and founder of Infowar.Com. He can be reached at winns@gte.net.

The skinny on ways to squeeze enterprise and Web applications into handheld devices.

THE INCREDIBLE SHRI

BY JOANIE WEXLER

David Epstein, vice president of product management at First Call, a Boston company that supplies research information to stock brokers, launched a wireless version of the Web-based service in November.

DAVE BRADLEY

After spending years fine-tuning their network applications to run harmoniously on enterprise networks and the Web, network executives are discovering they must now also configure them to accommodate mobile users.

These roaming users are often carrying handheld devices with tiny displays, and they tend to access corporate data across bandwidth-limited wireless networks with spotty coverage and disparate underlying communications protocols. These constraints, if not accounted for in a mobile implementation, can take a big bite out of user capabilities — and the success of corporate mobile projects.

In addition to retrofitting internal corporate applications, companies need to focus on their e-commerce sites. Cahners In-Stat Group estimates that more than 1.5 billion handsets and PDAs will be equipped with wireless data capabilities by the end of 2004. The implication is that nomadic shoppers will soon wish to make a good chunk of their online purchases using limited-function handhelds.

Case in point: First Call, a Boston company that offers research information to brokerage firms, went live with the first phase of a mobile version of its Web-based services in November, supporting Palm V and Palm VII PDAs.

Within 24 hours, wireless users were accessing the service — even though First Call didn't do any active promotion other than making the service known on its Web site, says David Epstein, vice president of product management.

Since November, between 20 and 25 new mobile users have gone online each week. Epstein says wireless access is particularly

NKING APP

high early in the week when business travel is at its peak, and greater volumes of financial news tends to be generated.

Basic mobile strategies

There are several ways to make your company, intranet and e-commerce applications suitable for mobile devices:

- Buy a mobile version of the off-the-shelf enterprise application. License, install and maintain it yourself.
- Use transcoding (also called screen scraping) to bridge Web-based HTML data across multiple formats, markup languages and mobile client devices.
- Rebuild applications or pieces of applications from scratch using off-the-shelf or homegrown wireless middleware tools.
- Use a wireless application service provider (WASP) if you need to get to market quickly with a mobile commerce application.
- Install and manage enterprise gateways that interface back-end applications to multiple networks and mobile devices.
- Hire a wireless integrator or outsourcers to build a custom application.

The approach — or mix of approaches — that you take will depend on your company's in-house wireless expertise, budget, time-to-market requirements, user profile, specific client devices to be supported and, of course, the overall productivity or revenue goals of the mobile application.

Start small and work your way up

For companies embarking on mobile deployments for the first time, some experts recommend starting with a small, defined application or user group. "Pick a place like field service or customer relationship management," advises Dennis Gaughan, senior analyst at AMR Research. "Establish your proof of concept and determine a [return on investment] with a small project. Then look to extend the mobilization accordingly."

If the goal is to deliver HTML data from a Web site to mobile users, it is possible to use simple transcoding technology to quickly get data into a mobile format. To perform this screen scraping, you can use off-the-shelf tools or premises-based server/gateway products, or you can turn to a WASP.

Transcoding software selects pieces of the HTML data to present to the mobile device, depending on its display format and the speed of the wireless network to which it is connected.

Some experts caution that this approach could eventually pose some scalability problems. "The repercussion of transcoding is that the mobile applications aren't built with stable business logic," says Andy Fox, chairman of iConverse, a supplier of mobile commerce development tools and WASP services. "So you don't have any maintainability when you change the application, and your ability to customize an application around specific devices is diminished."

IConverse offers a set of tools supporting multiple types of markup languages that enables what it calls "parallel publishing" — a way to develop an application once with associated mobile business logic, then view how the presentation appears on multiple device displays. Using an editing capability, enterprise developers can customize the application for an appropriate look and feel for any of more than 200 devices, Fox says.

First Call is using iConverse technology to deploy its mobile services. "The flexibility in expanding to new devices quickly in the future was one of the reasons we decided to use the iConverse platform," Epstein says.

Look to your primary app vendor

Many major application developers now have wireless versions of their mainstream business applications, including IBM/Lotus, Microsoft, Oracle, SAP AG, Siebel Systems and Sybase (see graphic, page 47). For giving users mobile access to a single corporate application or application suite, looking to your primary software vendor is the place to start, AMR's Gaughan says.

Depending on how many applications you want to mobilize, though, this approach could eventually present some scalability obstacles. Different vendors may have optimized their applications to run over certain types of wireless networks or to work only on a limited number of mobile devices.

Let's say a mobile application from Vendor A runs only a Palm VII but an application from Vendor B runs only a Wireless Application Protocol (WAP) phone. What if the same user needs mobile access to both applications? Users could quickly find themselves carrying multiple devices for multiple types of connectivity. Not only is this expensive, but it is also unwieldy for users and thus tends to diminish their use of a mobile product.

Integrate multiple apps

There are several ways to achieve a bit more integration. Companies can install and maintain mobile information servers on their own premises that link to enterprise application servers and extend existing applications wirelessly. Such servers are often available not only from the product maker, but also from a wireless network service provider acting as reseller.

Wireless Knowledge builds a product called Workstyle Server that sits inside an enterprise firewall and contains user authentication capabilities. The server bridges

corporate applications to microbrowser-enabled mobile phones, Pocket PC- and Palm OS-based devices and laptop computers, formatting Microsoft Exchange or Lotus Notes applications to the appropriate device display size.

IBM offers a similar server called IBM WebSphere Everyplace Suite, Lotus has one for mobilizing its Domino and Notes services, and Microsoft has an offering in beta test called the Mobile Information Server. In addition, Vancouver-based Infowave Software's Wireless Business Engine has modules for mobilizing Exchange and Lotus Notes and Web-based applications and is developing a module for corporate developers building new mobile applications.

When to use a WASP

"The WASP model makes sense for prototype systems that are not large," says Keith McIntyre, vice president and CTO at Stellcom, a wireless integrator in San Diego. "They can allow the enterprise to evaluate the strategic importance of the mobile application quickly" without a big upfront investment of time and resources.

Most WASPs do more than simply host a wireless application on a company's behalf. Some WASPs focus on reformatting Web pages for mobile devices, while others provide wireless content of their own, such as e-mail and news. Others supply special development platforms and gateway services that interface existing enterprise applications to the proper wireless network protocol and mobile client device, competing to a degree with premises-based products from companies such as Wireless Knowledge and Infowave.

Often, WAP-enablement of an application is one of many middleware services a WASP will offer. WAP is a framework for security and commerce protocols, development environments and markup languages that lets mobile users with WAP-enabled handhelds view and interact with Web- or server-based content (see graphic, above). Most mobile phones shipping today are WAP-enabled.

WASPs also usually perform data compression and other types of innovative data streamlining for more efficient transfers across bandwidth-limited mobile networks. Most also offer authentication and other types of security.

Piggybacking Web efforts

Some companies have been lucky enough to develop their applications for the Web and for mobile networks in one step or to otherwise take advantage of prior development work. Celanese Chemicals in Dallas undertook a mission two years ago to let its salespeople and other mobile workers mine more data from its SAP enterprise resource planning application so it could track the whereabouts of tank cars and other information. The first step was to Web-enable the application so workers could tap certain pieces of information provided they had Internet access, says Bill Schmitt, director of business enablement.

Clarkston Group, a Durham, N.C., integrator, installed software from HAHT Systems for this purpose, then broached the subject of going wireless.

Clarkston took responsibility for identifying which data fields were to be delivered in wireless formats. Then Celanese and Clarkston turned to GadgetSpace, a WASP that had a product up and running for Celanese in less than four weeks.

"GadgetSpace's raison d'etre is to enable us to use any access method and any device," Schmitt says. In Celanese's case, though, "we have found that help desks don't like to have to support multiple devices." For now, the company has standardized on Palm V devices using OmniSky Cellular Digital Packet Data wireless services.

The bottom line: "We have reduced the time it takes for our sales support group to get information via multiple phone calls and voice mails from as much as 5 hours down to 3 minutes," Schmitt says.

GadgetSpace offers a usage-based pricing model for mobile commerce application support, whereby the greater the number of hits, the bigger the service fee. To make intranet applications used by internal workers and extranet partners mobile-ready, GadgetSpace charges a per-user subscription fee of about $60 per month, per user for unlimited usage, not counting volume discounts, according to Karl Schlatzer, chief marketing officer.

Device, network support considerations

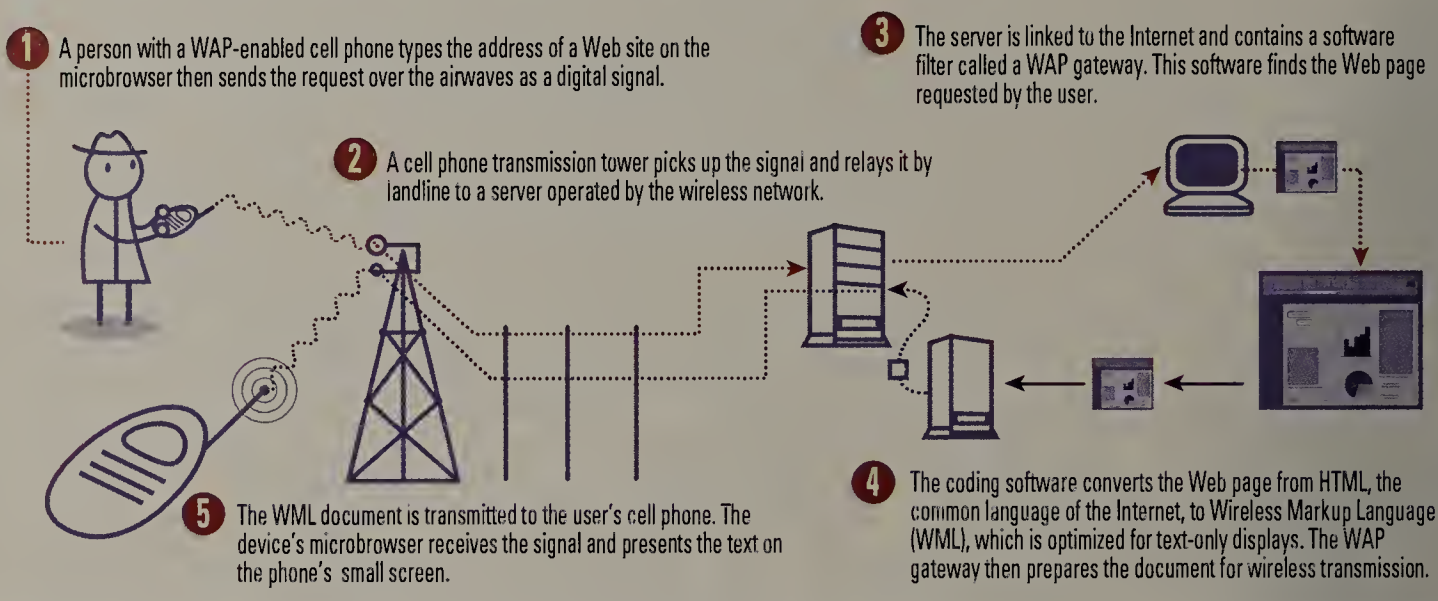
Companies mobilizing commerce applications for the masses need to take advantage of the multidevice, multinetwork connectivity offered by WASPs. When United Parcel Service (UPS) started thinking about going mobile, it had already developed APIs in-house to link its legacy tracking systems to business customers, such as retailers that wanted to be able to directly provide their customers with order status. When the shipping company decided to roll out the shipment tracking capability as part of a package of mobile information services for consumers, it simply handed the API over to WASP Air2Web of Atlanta, says Robert Conner, director of interactive marketing at UPS.

"Air2Web used the API to interface our applications to multiple types of wireless networks run by different carriers and to format them for a range of devices," Conner says. UPS takes advantage of Air2Web's relationships with multiple carriers and the WASP's technical ability to support one- and two-way Short Message Service (SMS) devices, Palm VIIs, RIM BlackBerry devices and WAP phones. By doing so, Conner estimates that UPS is able to reach 94% of its potential consumer market without having to develop or maintain multiple gateways of its own.

NetBank, an Alpharetta, Ga., online banking service, had similar reasons for turning to Air2Web when it recently decided that its customer service capabilities would benefit by having a mobile option. "Using a WASP enabled us to get to market fast with wireless access to our services and customer accounts," says Tom Cable, CTO at the company, which has no brick-and-mor-

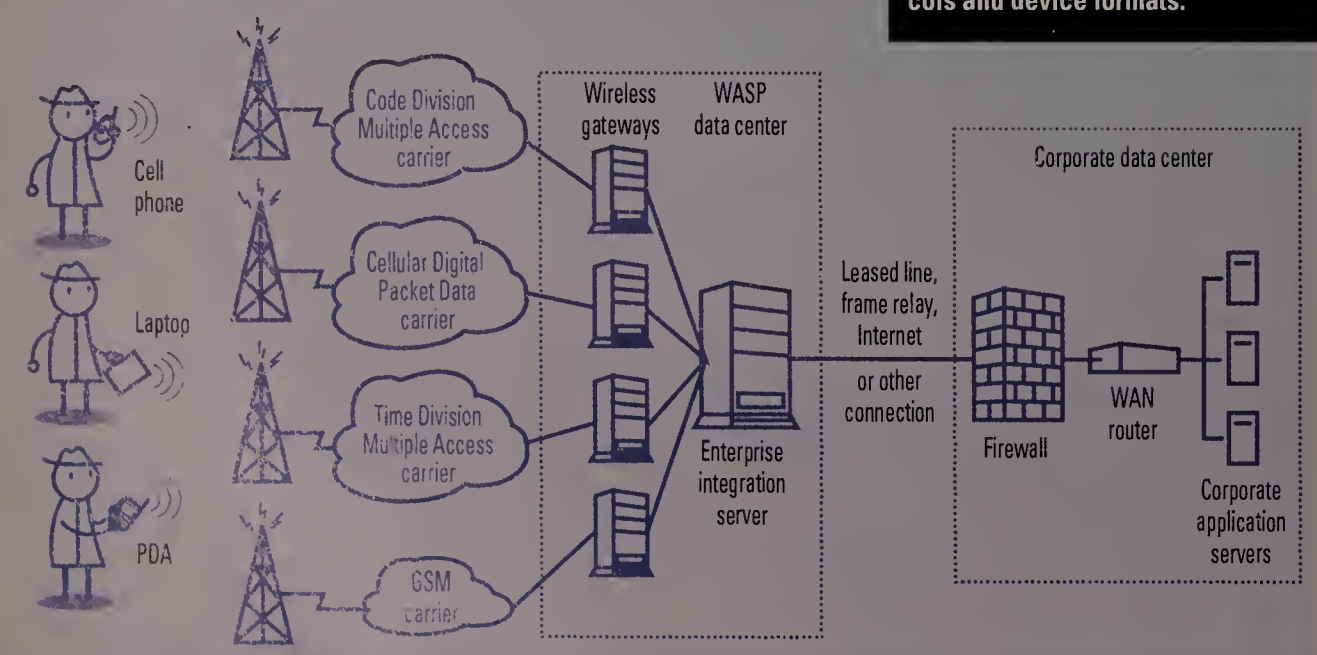
HOW WAP WORKS

The Wireless Application Protocol (WAP) is a set of standards specifying how cell phone users can access the Web.



The WASP model enables enterprises to outsource the complexities of integrating their corporate applications with multiple wireless network protocols and device formats.

BASIC WASP ARCHITECTURE



tar customer service facilities. The reason is that the WASP let the company serve users with virtually any type of device and wireless network connection with no development time required on NetBank's part, he explains.

Air2Web, like most WASPs, plays the role of intermediary between the company and its wireless carrier. Cable says this came in handy when it became clear that not all wireless carriers delivered the same level of service.

"Rather than our having to strike and manage relationships with multiple wireless network operators, Air2Web takes on that responsibility," Cable says. When NetBank experienced some poor customer response times with certain carriers, it was up to Air2Web to resolve the problem, Cable says. "And they did it," he says.

Cable says that NetBank is charged by Air2Web based on the number of customers signed up for its wireless services — a number he says hit 2,500 in the first eight weeks of service. Air2Web says that it generally charges about $3,000 per month for 750 users (its minimum), with each user averaging about 300 transactions per month.

Development tools

Companies can also take more of a "build-it" approach for going mobile, using off-the-shelf development tools or self-developed tools. Isovia will license companies a suite of wireless applications that sit on top of existing applications to make them mobile commerce-ready. Companies can install the Isovia M-Business Platform themselves or hire Isovia to install it.

The Isovia software supports client synchronization on Palm OS, Windows CE and RIM BlackBerry devices. The platform also has built-in browser support for devices including smart phones, pagers and PDAs. However, the company says it will recommend devices appropriate to the particular application a customer is making mobile-ready. For sales force automation tools, WAP phones generally do not have enough memory to house a full customer database, Isovia CEO Hemant Taneja says. Isovia advises against that device for that application. Instead, Isovia encourages running application client software on a mobile device that gives sales representatives access to product information and can work when out of network coverage range.

"If enterprises go to the time and expense to WAP-enable their sales forces, they don't want the effort to go to waste when a user is out of coverage," AMR's Gaughan says. "Also, users often lose wireless WAN coverage inside a building when they are on a sales call. So they need enough storage capacity in their handhelds to be able to access information for a customer."

For homegrown applications, users will have to do the development work for their handheld offline capabilities themselves or in concert with an integrator. Development tools from companies such as Metrowerks and Covigo can aid in the development of these functions, Gaughan says.

Another tools vendor, NetMorf of Boston, sells its SiteMorfer mobile development platform that offers back-end integration to a range of data sources including XML, Oracle databases, SQL Server and HTTP. Companies can write applications to the company's proprietary SiteMorfer Markup Language (SML). SML will then interface the applications as appropriate to Wireless Markup Language and Handheld Device Markup Language for WAP-compatible devices, Palm Query Application for Palm computers, compact HTML for Win CE devices and SMS for SMS-compatible devices such as RIM pagers. According to NetMorf CEO Michael Maggio, the cost of the SiteMorfer server and development environment ranges from $100,000 to $150,000 for support of 500 concurrent user sessions.

Mitchell's unique requirements

Some companies, though, might discover their requirements are too customized for off-the-shelf middleware or applications. Mitchell International of San Diego took matters into its own hands a few months ago when mobile-enabling its database-oriented applications, which deliver parts and labor information to the automotive insurance industry. The company experimented with off-the-shelf middleware but found commercial products limited for its particular requirements, says Ken Whitaker, senior vice president of product development at Mitchell.

"Our wireless applications are database-oriented, and we had to get a lot of data on a screen. The vendors we tested couldn't handle the volume of data we wanted to send," he says. So with the help of Stellcom it did the integration work itself.

He says Mitchell typically sends 600K- to 1M-byte files across the airwaves to enable about 1,000 insurance adjusters to perform on-the-spot estimates. One reason for the large file sizes is that a traveling insurance adjuster's mobile arsenal includes a digital camera for sending photos of vehicles to body shops for estimates.

Another issue was that applications needed to pick up where they left off after interruptions in connectivity. Insurance estimators with mobile offices in their vans often upload or download data in background mode while traveling to their next appointment. "The reliability issue was very tough," says Tom Julius, Mitchell's product manager for wireless. "We had to make sure applications didn't drop off while workers were driving in and out of Burger Kings."

Jim Lindner, Mitchell's CEO, reports a 30% to 40% improvement in worker productivity since the mobile estimating application went live.

Final tips

Geoffrey Martin, assistant director of mobile business solutions at Clarkston, offers some general advice for companies embarking on mobile projects. He suggests that in choosing a mobile platform, you ask the vendor or WASP about its upgrade path — which devices and networks will be supported in the future. "Also, discuss what happens if you change your contract to broaden your support," he says.

AMR's Gaughan recommends that when selecting vendors, companies should look closely at the integration strategy between applications and gateways, because this is where much of the wireless complexity lies. He advises also to ultimately choose vendors based on the strength of their partnerships. "The market will not support all the current vendors, and those with the strongest partnerships will have the best shot at survival," he says.

Wexler is an independent writer and editor in Campbell, Calif. She also authors Network World Fusion's "Wireless in the Enterprise" e-newsletter. She can be reached at joanie@jwexler.com.

A GUIDE TO MOBILE PRODUCTS AND SERVICES

OFF-THE-SHELF ENTERPRISE WIRELESS APPLICATIONS

Company	Offering(s)
IBM/Lotus (www.lotus.com)	Mobile Notes
Oracle (www.oracle.com)	Oracle9i App ServerWireless Edition
PeopleSoft (www.peoplesoft.com)	Mobile eStore
SAP AG (www.sap.com)	mySAP Mobile Workplace
Siebel Systems (www.siebel.com)	Siebel Wireless
Sybase (www.sybase.com)	iAnywhere Wireless Server

WASPS, INTEGRATORS AND PROFESSIONAL SERVICES

Company	Offering(s)
2Roam (www.2roam.com)	The 2Roam Wireless Website Toolkit*
Aether Systems (www.aethersystems.com)	Hosting of mobile apps; customer support; billing.
Air2Web (www.air2web.com)	Always Interactive service suite
Broadbeam (www.broadbeam.com)	Hosting, professional services
Clarkston Group (www.clarkstongroup.com)	Mobile business strategic planning, application development, hosting.
Covigo (www.covigo.com)	Integration of wireless with customer's application, and back-end systems.
GadgetSpace (www.gadgetspace.com)	MobileMediary
Geoworks (www.geoworks.com)	Mobile ASP
iConverse (www.iconverse.com)	iConverse ASP
Stellcom (www.stellcom.com)	Software engineering services
Sybase (www.sybase.com)	Sybase iAnyplace
Wysdom (www.wysdom.com)	Mobyle Portal

ENTERPRISE GATEWAY/SERVER PRODUCTS

Company	Offering(s)
Brience (www.brience.com)	Wireless Edge Server
Geoworks (www.geoworks.com)	Mobile Server+
IBM (www.ibm.com)	WebSphere Everyplace Suite
IBM/Lotus (www.lotus.com)	Mobile Services for Domino
Infowave Software (www.infowave.com)	Wireless Business Engine
Microsoft (www.microsoft.com)	Mobile Information 2001 Server
Mobile Computing (www.mobilecom.com)	m-Linx Mobile Worker
Wireless Knowledge (www.wirelessknowledge.com)	Workstyle Server

MIDDLEWARE/DEVELOPMENT TOOLS

Company	Offering(s)
Bonita Software (www.bonitasoftware.com)	ToGo Developers Kit and APIs
Geoworks (www.geoworks.com)	AirBoss Mobile Solutions
iConverse (www.iconverse.com)	iConverse Parallel Publishing
Isovia (www.isovia.com)	Isovia M-Business Platform
Metrowerks (www.metrowerks.com)	CodeWarrior
Mobile Computing (www.mobilecom.com)	Max Wireless Routing Software
NetMorf (www.netmorf.com)	SiteMorfer mobile development platform
WRQ (www.wrq.com)	NetMotion Mobility Solutions
Wysdom (www.wysdom.com)	Mobyle BluePrints

* Can be used in context of an application service provider service or as an enterprise tool.

Finally, networking made easier

produced by

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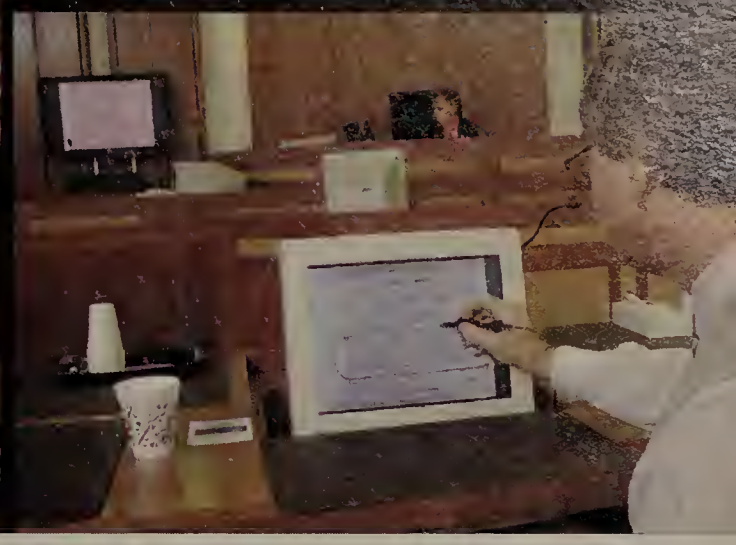
James Starr, clerk of the U.S. District Court in Concord, N.H., checks to see that the court's video conferencing system is up and running. The courtroom is wired with cameras, microphones and video displays so that hearings can be conducted over ISDN lines between judges in Concord and inmates in out-of-state federal prisons.



ORDER IN THE COURT

Step into Courtroom No. 4 at the U.S. District Court in Concord, N.H., and you'll notice PCs sitting on the judge's bench, the clerk's table, the lawyer's benches and the questioner's podium located in between opposing counsel.

BY JASON MESERVE

There's even a large, flat-screen monitor on the wall behind the witness box, and the jury box contains three large-screen televisions for viewing evidence and other video footage related to the case.

Not exactly how you might envision today's courtroom, especially if you base your impressions on popular courtroom-based television shows such as "Judging Amy" and "Law & Order."

But the New Hampshire court, which ranks 70th in size out of 94 federal court districts, is pushing the envelope of courtroom automation technology behind the leadership of James Starr, the district's clerk of courts.

Starr, who acts as the CEO of the court (the three appointed judges are the board of directors), started integrating technology into the courtroom with federal grants about two years ago. The court's administrative office in Washington, D.C., began giving money to courts with "big prison populations and a lot of [geographical] space to cover," Starr says. "They were looking for cheaper, better and safer ways to deal with the prison population."

Starr and his staff came up with the idea of implementing a videoconferencing system to communicate with people without having to transport them from jail to the courthouse. New Hampshire has no federal prison within the state limits, meaning people scheduled to appear before the court have to be transported from out of state and housed in the local state prison.

This can be an expensive proposition considering the court hears roughly 125 criminal cases per year and scores of prisoners' rights arguments from inmates claiming their due process was violated.

Once he had administrative approval, Starr put a proposal out to bid, and the contractor selected to do the project, Telamon of Carmel, Ind., brought in VNCI of nearby Portsmouth, N.H., as a subcontractor. Implementation planning began in earnest more than a year ago and installation got underway last February, says Bob Davenport, PC systems coordinator for the court.

VNCI used the existing phone wiring and VidModems connected to a PC to deliver high-quality video. VidModems work similar to DSL connections in that the phone can be used for normal conversation while data is delivered at a higher frequency over the same line. A central switch — basically a specially built computer with a custom telecom board built in — connects the desktop-based endpoints with each other. The link to the outside world is ISDN.

All judges and key members of the administrative staff have desktop conferencing units they can use to talk to one another within the building, including conferencing up to four people simultaneously. Only a single 384K bit/sec ISDN line is available for connecting to the outside world, so that has to be scheduled accordingly.

The marvel of the whole system is Courtroom No. 4, which is the most wired of the six in the building. The room is a video client in and of itself, with a single PC connecting it to the rest of the system. Three cameras positioned throughout the room show the judge, witness box and questioner's podium.

Microphones and speakers throughout provide the sound. Connected to the video system is the evidence display system (Elmo) for showing physical and document-based evidence to the jury and whoever may be conferenced in (Courtroom No. 1 also has videoconferencing built-in, but it has a less-comprehensive multimedia system).

"The judge has a pre-

JIM DANIELS

view monitor to see what video is going out of the courtroom," Davenport says, adding that the judge is in complete control of what people see on the monitors. "We've disabled the pan and tilt features [zoom is enabled] on the cameras because we don't want the judge or clerk [who can be passed control] creating amateur home videos."

Virtually anything happening in the courtroom can be passed onto the VNCI system. Each of the PCs at the lawyer's tables is equipped with light pens for highlighting pieces of documents. (Davenport calls this the "John Madden system," referring to the television football commentator.) None of the PCs are networked together or connected to the Internet for security and bandwidth reasons; only the video signal from each of the machines is used.

Unlike most courts, where judges get their own courtrooms, New Hampshire schedules judges to specific rooms based on the needs of a trial.

Videoconferencing has come in most handy for the court magistrate who has to hold hearings for prisoner issues and complaints. Most prisons now have two-way video equipment, so the magistrate can carry out the hearing while the prisoner remains locked behind bars.

Starr says Magistrate Judge James Muirhead is his most ardent user, although the three main judges are starting to use the technology more. A couple of judges have started to use the system to participate in meetings in Washington, saving on travel time up and down the coast.

"Videoconferencing is still new for the courtroom culture," Starr says. "We're trying to show the way for the bar and public on how it can be used."

Starr says that his current level of courtroom automation technology has saved his court 20% in trial time, providing a direct cost savings to the taxpaying public. For example, take the case of a doctor vacationing in California who was scheduled to appear at a trial to give testimony about some X-rays. Instead of flying the doctor back to New England, they had him go to a local copy center that offered videoconferencing so he could do a video call to the courtroom.

One problem that was encountered in getting the system up and running had to do with getting the sound and picture right. When the system first came on, there was a high-pitched screech across the audio because of feedback between the microphones and speakers, Davenport says. It has also been a challenge to get the proper lighting on subjects to eliminate bad shadows and weird color shades in people's faces. "Sometimes you can get a blue face showing up on screen from the reflection of the PC monitor," he says.

IP-based videoconferencing was not an option for a couple of reasons, Davenport says.

"We're federal, meaning we don't have endless funds to keep upgrading bandwidth," he explains. "Also, what do you do with the guys whose packets were killed [because a video call took precedence on the network]? You can't tell a judge that his data packets are less important than the videoconference next door."

Videoconferencing is not the end of the courtroom automation line for Starr and the New Hampshire court. A new jury management system was recently put into place, with improved e-mail, financial and document imaging systems following about every quarter.

"This building is the best in the country for infrastructure," Starr says. "We built the place for modification." Each of the electrical closets has excess conduit for adding wiring such as fiber optics.

For Starr it's about technology assisting in the meting out of justice. It's also about bringing the antiquated court system into modern time. ◪

BROADBAND BOTTLENECK

THE LACK of TRAINED CABLE MODEM and DSL INSTALLERS is CREATING a LOGJAM for NEW CUSTOMERS.

Erik Peterson's cable modem installation at Somix Technologies was at a standstill for weeks before Time Warner worked out the problem.

BY DREW ROBB

JIM CARREY'S FRIGHTENING

portrayal of "The Cable Guy" may not be so far from the truth, at least when it comes to broadband. Network executives are often surprised to find just how little installers know about IT.

For example, Time Warner Cable spent six weeks trying to resolve a failed RoadRunner cable modem installation at network management vendor Somix Technologies of Sanford, Maine, due to poorly trained technicians.

"These were cable guys, not computer guys," says Erik Peterson, IT manager at Somix. "They could plug in a few wires, and that was about it." A knowledgeable technician eventually showed up, located a faulty cable splitter, replaced it and service began.

Mike Luftman, vice president of Time Warner in Stamford, Conn., says the company's high-quality installation focus means such failures are a rare occurrence. He concedes, however, that broadband installations are far more challenging than traditional cable.

Somix's experience highlights a serious obstacle that is threatening to derail the broadband wagon — the severe lack of skilled resources. "There is an alarming shortage of qualified broadband installers today," says Michael Goodman, senior analyst with The Yankee Group.

According to The Yankee Group, the skills shortfall is having dire consequences on the industry. About 4% of U.S. households have broadband, yet 38% want it now and are happy to pay the price. Unfortunately, only half of those people will have it by 2004, and 20 million people will have to wait at least four years without service.

Why the installation logjam? A few years back, "cable" meant cable TV, a mature technology with an abundance of competent technicians. Today, cable also encompasses advanced digital cable, digital telephone service and high-speed Internet. Each demands a high level of know-how that transcends basic cable technology and moves over into IT.

The new breed of technicians should possess a range of skills that include the basics of wiring, and a proficiency in broadband technology, hardware/software essentials and networking, as well as people skills for client interaction. Most current installers don't fit the bill.

That's why so many service providers are investing heavily in training. AT&T Broadband, for example, has increased its training budget by 400% during the past two years. Despite stepped-up training efforts, insatiable demand for broadband means that most users continue to be subjected to installation snafus.

"The Pac Bell DSL technician wasn't very computer literate, had trouble opening a public IP address for our VPN, and had to read instructions each step of the way," says Morgan Scott, a network manager for The Futures Channel, a Los Angeles content provider specializing in career-oriented video clips.

Clearly, service providers are struggling to cope with heightened demand. Broadband self-installation software vendor BroadJump of Austin, Texas, sells its wares to the likes of AT&T, Sprint and Time Warner. According to BroadJump, these customers complain that they have plenty of wiring technicians, but a severe shortage of inside-premises PC technicians.

While the industry has long outsourced installation, it is now looking for products and companies emphasizing technical and customer service expertise. Scientific-Atlanta's SciCare Broadband Services, Premise Technology Division of Broadband Services and Viasource Communications are a few of the companies that have built a core resource of installers and technicians. Yet many of these companies run into the same skills shortage challenges as their customers.

FatPipeU of Irvine, Calif., offers a more comprehensive approach. In keeping with the notion that there is no shortage of labor, only a shortage of IT skills, FatPipeU targets the underemployed — unskilled or semiskilled workers who can and want to learn a new skill. There are 10 million underemployed people in the United States, according to former U.S. Secretary of Labor Alexis Herman.

Matt Feshbach founded FatPipeU when he heard about the installation logjam. "I realized that with more than a trillion dollars being bet on broadband, someone had to make sure the stuff got installed," says the company's CEO. "Broadband service providers, shareholders, customers and the community at-large all win if an army of broadband technicians are deployed."

Feshbach aims to recruit from the ranks of the underutilized and train them into an army of what he calls advanced broadband specialists: technicians who can install digital video, data and voice. During the past few months, FatPipeU has recruited, trained and placed close to a thousand workers with top broadband firms such as AT&T. With the IT labor market being so tight, this concept opens the door to a larger base of employees.

"FatPipeU offers a womb-to-tomb, turnkey solution to the broadband skills shortage that fills the needs of the industry," says Leo Hindery, CEO of GlobalCenter, the Web-hosting arm of Global Crossing.

But whether technician training is provided internally by service providers or outsourced to firms such as FatPipeU or Broadband Services, the industry as a whole needs to train competent broadband installers like never before. Along with meeting the massive backlog in demand, such a move could breathe the kiss of life into the moribund state of cable/DSL stocks. A study of 575 firms by the American Society for Training & Development (ASTD) found that companies which invested $680 more in training per employee than the average investment of $915 per employee gained a 6% improvement in their total stockholder return the next year.

"It is clear that a firm's commitment to workplace learning is directly linked to its bottom line," says Mark Van Buren, director of research for ASTD in Alexandria, Va. "Investors, Wall Street and financial analysts should pay attention to it."

Robb is a freelance writer in Los Angeles who specializes in technology issues. He can be reached at drewrobb@mediaone.net.

IS SELF-INSTALLATION STALLING?

***SELF-INSTALL HAS BEEN TOUTED** as the savior of broadband growth. Instead of service providers sending a truck to a subscriber's address, the customer picks up a CD, installs the software, and voila — instant broadband.*

DSL service providers such as EarthLink and Qwest Communications are banking on self-install, claiming nearly 80% of customers opt for self-install and 85% succeed. For instance, Verizon provides self-install kits by 3Com for some East Coast regions. Customers purchase the $100 kit containing an internal modem, analog filters and a CD from a computer store. Time Warner Cable also has a self-install partnership with software vendor BroadJump.

"We maintain an 82% rate for self-installation," says Brett Kindness, general manager of Time Warner Cable's Green Bay Division.

While self-install is undoubtedly easing the strain, it is something of a misnomer. Far from eliminating truck rolls, a technician still has to be present to handle wiring. In many cases, troubleshooting turns out to be needed, even for the computer literate.

"It's hard for even geeky PC users to know how to set up broadband," says Justin Beech, CEO of DSLReports.com. He lists an array of possible glitches: incorrect DNS server data, Universal Serial Bus driver problems, faulty filters or splitters, bad pairs, lack of RAM, too slow a PC, lines not ready, synch difficulties, CD install hassles and no DSL access multiplexer nearby, to name a few.

The self-install proved easy at Trade Press Services until it came to interfacing the hardware and software. "Verizon technicians seemed to have virtually no knowledge regarding the configuring of Ethernet IP addresses for DSL when a server is involved," says Hal Knilans, CTO of TPS, an editorial consulting firm in Thousands Oaks, Calif. Several truck rolls followed before resolution.

But if IT managers can usually fumble through and achieve success, the average consumer faces a rough ride. Only 10% to 15% are willing to perform self-installation. "Consumers don't want self-install," says Michael Goodman, a senior analyst with The Yankee Group. "They'd rather have a technician come in and take care of everything."

Disappointing quarterly numbers indicate that DSL is beginning to run out of early adopters for self-install. Figures from investment bank Robertson Stephens show DSL quarterly subscription growth slowing from 60% to 37%.

Self-install specialist Qwest had 39,000 new subscribers in the second quarter last year, dropping to 38,000 and 37,000 in succeeding quarters. That rate of drop off is a sign that early adopters are in short supply.

However, Murray Smith, Qwest's vice president of DSL development, claims those numbers are incorrect and that subscription totals have increased each quarter. He says the company has "mom-proofed" self installation through a combination of color coding and ease-of-use features, as well as a toll-free support line that walks people through DSL installation.

Even if self-install gets over the early-adopter hump, it's likely that more and more troubleshooting will be required. DSL Reports' Beech says there are some cases of consumers ordering DSL who didn't even have a PC.

"There are some installation elements that still require a technician, so the first truck roll may be here to stay," says Jim Crow, CTO of BroadJump.

But that may not be such a bad thing. More people working in technology and telecommunications is good for everybody, says Matt Feshbach, CEO of FatPipeU in Irvine, Calif.

— Drew Robb

NetworkWorld REVIEW Desktop firewall

Another firewall for the road

Symantec's Desktop Firewall 2.0 is ripe for a corporate rollout

BY STEVE JANSS

You just finished securing 10 executives' laptops with personal firewalls, pleasing your boss. Now he wants you to secure the corporate workstations — all 500 of them across multiple domains and in three cities, two of which are on the opposite coast. At least he finally realized the corporate firewall doesn't protect mobile users, telecommuters, branch offices, or internal users from one another — where about half of all security breaches occur.

Before you cancel your summer vacation plans, try Symantec. Specifically, Symantec's Desktop Firewall 2.0.

Symantec broke all speed records in upgrading last year's firewall for its first corporate offering. It's using the same engine as in Norton Personal Firewall 2000 and Internet Security, but has completely changed how one deploys, configures and maintains the firewall within the firm — for which it is well suited.

Cool rules

After you install the software, you can tighten security by modifying the firewall's rule set and distribute the rules throughout the organization: Enter the Rule Set Packager Tool.

First, the tool creates a rule set on a client installation of your choice. This becomes your reference system. After the rule set you've created fits the needs of your organization, the tool creates a self-extracting executable program to update client machines. You can also use it to create a *.reg file that contains the rules in a readable format.

Distributing the executable file can be done in several ways, including as a linked download from the corporate Web site, via e-mail, or through a logon script. As the rule set installs itself on the client, it overwrites all previous rule sets, including those created by the user.

Unfortunately, this feature creates two potentially serious flaws. First, a hacker can create a rule set with a gaping hole, then e-mail it to people within the organization. Second, there is nothing that prevents your savvy users from modifying the rule set to access their favorite sports network — and breaching the firewall in the process.

Symantec officials say they are addressing this issue in response to customer concerns and should have a more secure means of updating the rule sets with the next release. It's our guess they'll employ digitally signed updates. Until then, we suggest using logon scripts to refresh the rule sets daily. We would also set the server to force logoffs overnight, thereby ensuring that a fresh logon takes place in the morning. While these actions won't plug the hole, they will minimize the frequency at which breaches might occur.

Hurt me

The fun part of security product reviews is getting to unload an arsenal of tools that test the mettle of the product. With Desktop Firewall in our sights, we were ready to attack.

It passed Gibson Research's Leak Test, which tests for the firewall's protection against Trojan horses, as well as Gibson's Shield's Up, which checks for open ports and undesirable shares related to Windows.

We then attacked with a significantly more serious tool: Internet Security Systems' Internet Security Scanner, Version 6.1, which performs as many as 768 checks, including 16 denial-of-service attacks designed to bring any unprotected machine to its knees. Despite our best efforts, Desktop Firewall remained standing.

Menu of install options

We were equally impressed with the number of installation options Symantec offers. If you count the old-fashioned method of sharing the CD-ROM, Desktop Firewall offers six install options. The product supports Microsoft's Internet Information Server (IIS) Versions 4.0 and 5.0 and Apache's HTTP Server Version 1.3.12 or higher. It also supports NetWare and Windows NT logon scripts, as well as Microsoft's SMS. If you'd prefer to set up a network installation on your file server, Symantec has that covered, too.

The documentation was simply the best. Copying the client installation files to the Web server was a simple, three-step process: create a folder, insert the CD-ROM and copy three folders from the CD-ROM to the server. Configuring the Web server is nearly as straightforward, although slightly different for Apache than for IIS. To set the server name and virtual directory, we edited the startnt.htm or start9x.htm files.

Installation can be interactive (bother the user) or silent (user has no idea). To do a silent installation or a basic user interface install (with a progress bar), you'll need to modify the appropriate *.ini file, depending on the client operating system.

Although configuring Desktop Firewall for installation via NetWare and NT logon scripts is a little more involved, Symantec has provided an interactive, graphical user interface configuration tool for making the necessary changes to the logon scripts.

There was a lack of information about SMS installations, but Symantec provides two package definition files, one for SMS 1.2 or earlier, and one for SMS 2.0 or later.

Desktop Firewall is a well-designed and documented program that's impervious to everything we could throw at it. We're still concerned with the two rule set security flaws, so make sure you check with Symantec before you buy. With those patches in place this product will let you protect those 500 workstations, and you can leave for vacation.

Janss is the president of Jansys Information Systems, a consulting firm specializing in IS technologies for small businesses. He can be reached at bizcom@jansys.com.

NetResults

Desktop Firewall, Version 2.0

RATING: 4.05 **COMPANY:** Symantec, (541) 345-3322, www.symantec.com **COST:** $27 per node for 500 nodes; includes product updates, new versions and HelpDesk Gold Support for one year. **PROS:** Great installation options; excellent interface; top documentation; ironclad firewall protection. **CONS:** Gaping administrative security hole due to unprotected rule sets.

	Security 25%	Management 25%	Installation 20%	Features 15%	Documentation 10%	Price/value 5%	Total score
Desktop Firewall	4	3	5	4	5	4	4.05

Scoring key: 5: Exceptional showing. Defines the standard of excellence; **4: Very good showing.** Although there may be room for improvement, this product was much better than average; **3: Average showing.** Product was neither especially good nor exceptionally bad; **2: Below average.** Lacked some features or lower performance than other products, or than was expected; **1: Considerably subpar,** or lacking features being reviewed.

How we did it

Our test system consisted of a P5-200MMX running Windows NT 4.0 with Service Pack 6a, 128M bytes of Extended Data Out-RAM, and a 4.5G-byte Enhanced Integrated Drive Electronics (EIDE) hard drive with 680M bytes of free space. Our full-duplex 100-Base-TX network uses Linksys LNE100TX network interface cards and a Linksys BEFSR41 router/switch.

The security tests were performed using Internet Scanner on a Pentium III-800EB with 256M bytes of RAM running Windows 2000 Professional with Service Pack 1. We ran 74 denial-of-service attacks and 651 standard attacks against the test system, checked for six unsecured services and used eight means to attempt to gain the name of the machine's account.

We also evaluated the instalia-tion, management features and documentation.

Management Strategies

Career Development, Project Management, Business Justification

Bringing IT under one roof

Here's how Iomega met the many challenges of centralizing network management head on.

BY BONNY GEORGIA

As a globally dispersed company, Iomega learned firsthand that no IT division should be an island unto itself.

In 1996, Iomega's IT department was decentralized and administered by managers inside the firm's headquarters in Roy, Utah, and by regional managers scattered throughout the globe. With these regional teams operating independently from headquarters, expensive redundancies and incompatibilities had developed that undermined the company's IT budget and response times.

The desire for better flexibility, speed and more efficient decision-making drove the storage manufacturer to rein in these divisions and centralize systems around a common application and hardware platform.

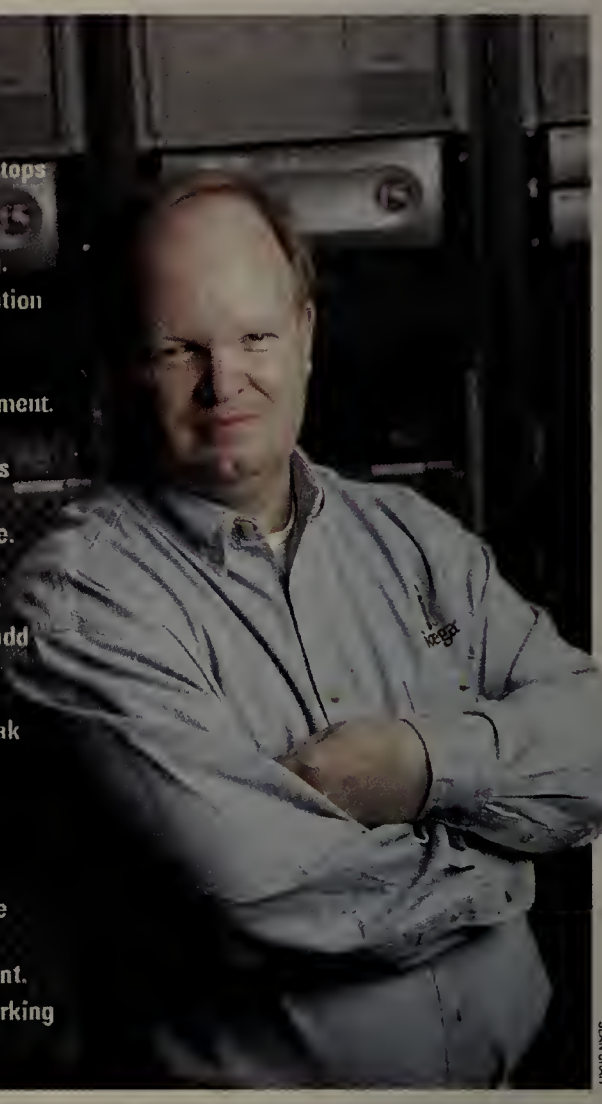
"Recentralization of IT for Iomega was a long-term process change involving clear objectives and measurable goals," says David Woffinden, IT manager of strategic planning at Iomega.

The company gradually transformed its IT reporting structure over the next two years, beginning with the establishment of a single Oracle system for management of enterprise resource planning (ERP) and financial reporting. The IT process improvement team and regional IT managers began reporting to the CIO, coordinating internal transition efforts and centralization projects outside corporate headquarters. "Business process owners were identified and used as key points of contact to manage change," Woffinden says.

The last step was to ask IT managers across the country to prioritize projects and identify 50 with the potential to provide the highest rate of return.

Iomega's plan for centralizing IT

Challenge/opportunity	Response and solution used
Corporate standards	1. Define standards for everything from desktops and phones to network routers and PBXs. 2. Rotate and share IT staff from corporate headquarters with regional sites for training. 3. Configure equipment for remote administration whenever possible. 4. Keep technology fresh. 5. Gradually replace old or nonstandard equipment.
Common solutions	1. Reduce the number of competing solutions across sites. 2. Use packaged applications when possible. 3. Have business process owners prioritize competing requests. 4. Research areas where IT can be used to add business value.
Cultural and regional differences	1. Hire IT managers abroad who can all speak and write in a common corporate language. 2. Define what decisions are made on a regional basis vs. what decisions are made on a corporate basis.
Small sites	1. Select world-class vendors and outsource support for small sites. 2. Send remote sites plug-and-play equipment. 3. Use a generalist to support all IT and networking functions.



SEAN GRAFF

David Woffinden of Iomega says centralizing IT was worth the effort.

Centralization took planning, perseverance and plenty of effort, but the result was a highly streamlined chain of command with clear reporting and management responsibilities. The IT teams include:

- Infrastructure: Evaluates, implements and operates IT architectures, performs vendor management, and directs projects.
- Functional: Focuses on business process improvements.
- Regional: Supports remote and international users.
- Strategic planning and analysis: Coordinates efforts and future plans between all IT groups, and works with the CIO to develop methods for transforming the company into a "seamless virtual entity," Woffinden says.

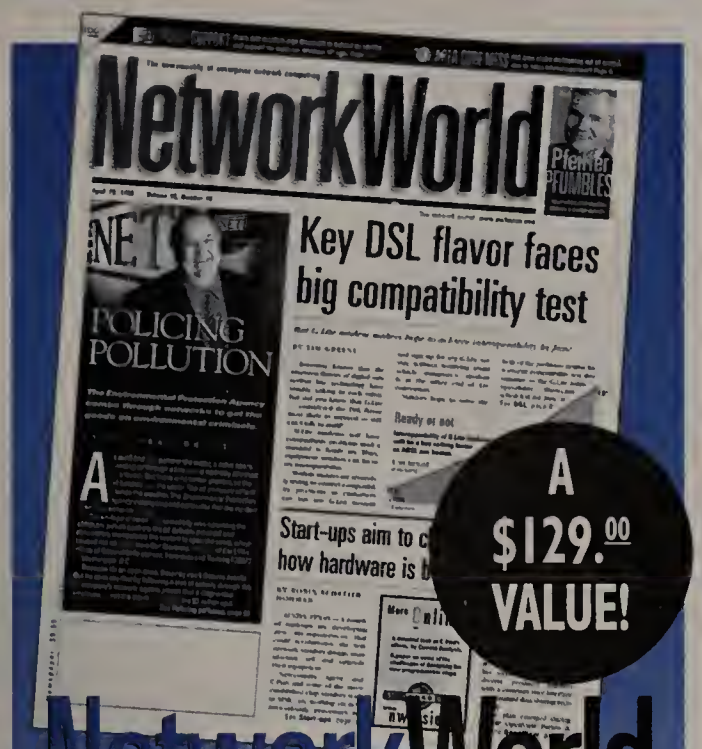
Only a handful of IT functions remain outside the corporate IT umbrella, including manufacturing systems, software test labs, research and development, business sites too small to support a full-time IT professional, and localized Web content, although these areas are reassessed on an annual basis.

Woffinden says the centralization efforts cost Iomega about $50 million over several years, but the benefits have greatly exceeded costs. For example, the move slashed support costs for internal global reporting by a factor of 15. A staff of two or three now handles the work that previously required 20 or more employees, and a centralized help desk provides worldwide support around the clock.

Shorter response times and greater flexibility have been a huge boost to IT managers. "We recently upgraded our ERP system to a new version level. The upgrade was successful and was completed on time and under budget," he says. "In the past, this effort could have taken at least 50% more work and cost hundreds of thousands of dollars."

Moreover, recent improvements to Iomega's supply chain management wouldn't have been possible without centralized systems. "Our current IT infrastructure is designed for future company growth, and the time required to develop solutions or upgrade systems has improved dramatically," he says. "Centralization of the IT department has been one way we have been able to create a winning team with a common vision for providing the highest level of service to our customers."

Georgia is a freelance writer based in Hudson, Mass. She can be reached at bonny@wordsatwork.net.



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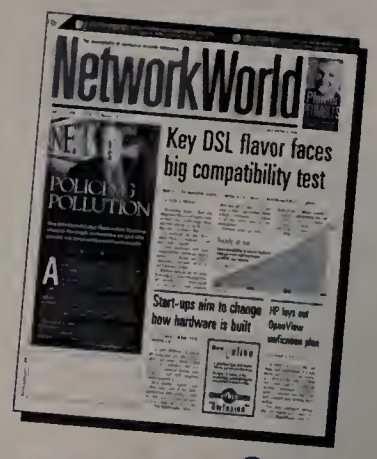

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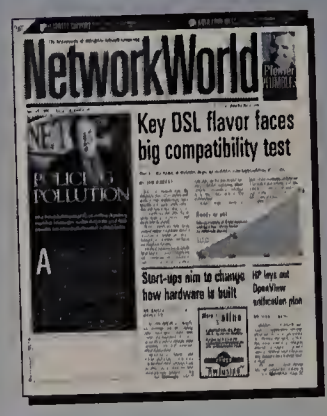

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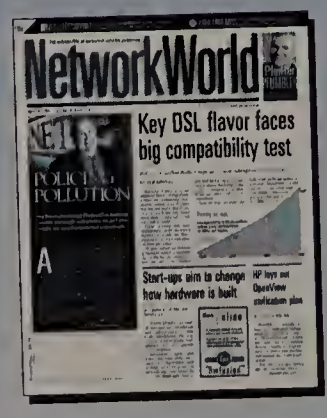

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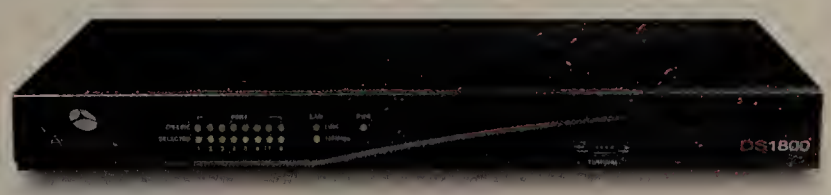

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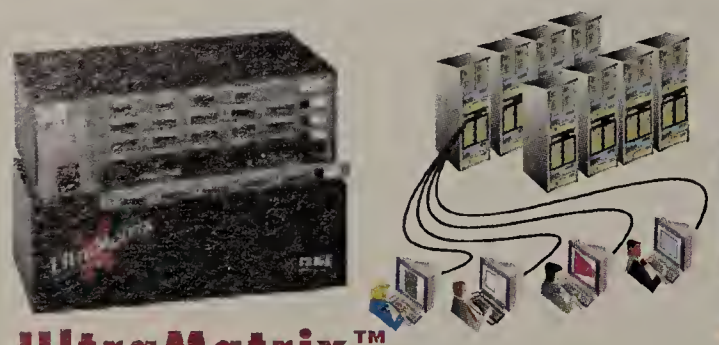

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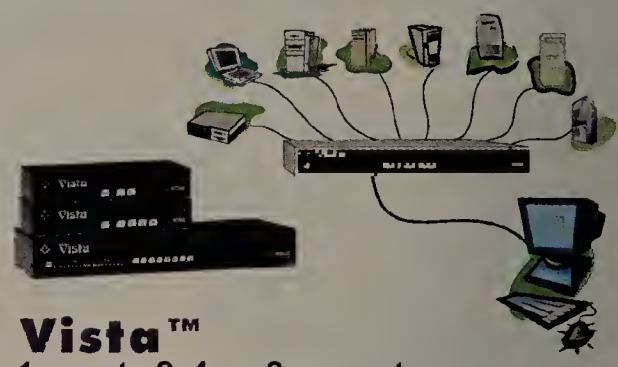

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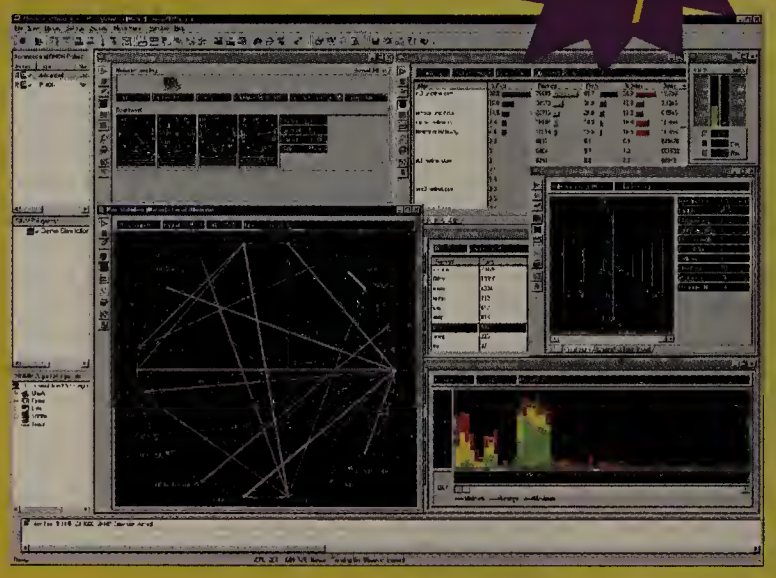

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Full-time Software Quality Assurance Analyst. Responsibilities include: manage the design, development and implementation of quality assurance testing applications for highly specialized web-based technology including Java, Enterprise Java Beans, HR-XML, Linux, Solaris, HTML, SOL-Server and Relational Databases; design and install software test tools; analyze software testing metrics and manage the strategic and tactical development of software testing processes; perform user acceptance tests and user training. Must have a Bachelor's degree or foreign and/or educational equivalent in Computer Science, Business Administration or related fields and two years of experience in software quality assurance testing. Must be proficient in quality assurance configuration management, test plans and test scripts, requirements documentation, defect tracking, software development life cycles and process improvement. Salary: $63,000 and up, commensurate with experience. If interested, send resume in duplicate to:

Human Resources Director
Novient, Inc.
3525 Piedmont Road
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Atlanta, GA 30305

Full-time Jr. BIOS Engineer. Responsible for BIOS customizations, isolating BIOS problems, and BIOS releases using C/C++ and and Intel x86 Instruction Set. Establishes customer relations. Writes and maintains technical documents. Works with assembly language training programs, development system, test system, and any computer hardware and software necessary to reproduce customers problems. Must have a Bachelor's degree in Electrical Engineering. Must have 2 yr of experience in job offered or a position with the same duties. Salary:$58,234/yr Send resume to: Nanda Chheda, AMI, 6145-F Northbelt Parkway, Norcross, GA 30071.

Dotelements Inc., a NJ IT Co. is looking to fill up the following positions at their work sites:

Programmer Analyst/Software Engineer - Bachelors degree in engineering (any), math, science and two years of experience in the job (or) five years of experience in the job. Will accept Bachelors degree + five years experience in the field. Prefer exper. in the follcwing skill sets: ORACLE, Developer 2000, Visual Basic, CICS, C++, C, UNIX.

Software Engineer: Masters degree and two years of experience.

Send resumes to: Dotelements, Inc., Phelps Ave, Suite #8A, New Brunswick, NJ 08901.

Pro. Analysts, Sys. Analysts, Sys. Adm., DBA's, Software Eng., Network Administrators. Analyze, design, develop, and implement Client/Server, ERP, and Internet. Required - Bachelor's Degree or higher and exp in Oracle, Power Builder, Visual Basic, HTML, Java, C, C++, and Unix. Competitive Salary, Travel required. Positions in PA, NJ, NY. Send resume to ePlanets, 2 Kilmer Rd., Edison, NJ 08817.

Full-time RAID Software Engineer. Responsible for the development, enhancement, and maintenance of RAID Software Components using Symbios SCSI chip Assembly, SCSI, ATA (IDE), and C/C++. Works with Test and Validation groups to ensure component is tested thoroughly. Assists and trains RAID Junior Software Engineers. Must have a Bachelor's degree in Computer Science or foreign degree equivalent. Must have 2 yrs of experience in job offered or a position with the same duties. Salary: $63,451/yr. Send resume to: Nanda Chheda, AMI, 6145-F Northbelt Parkway, Norcross, GA 30071.

Accounting Consultant sought by CPA firm in Groton, CT, to help clients w/business interests in India. Must have a Bach Deg, w/5 yrs exp in job offered. Must have knowledge in Accounting practices & standards in India. Respond to HRD, Affiliated Business Services, 1 Fort Hill Rd, Groton, CT-06430.

SYSTEMS ANALYST wanted by New York City financial/equity brokerage. Req. 2 yrs exp & bachelor's degree or equivalent in computer science/engineering. Send resumes to Catalyst Trading, attn AR, 50 Broadway 2nd Fl., NY, NY 10004.

Software Engineer needed by Princeton, NJ consulting firm to design and develop distributed network and Service Management Applications using C++ and Java under UNIX and Windows NT environments using UML for data modeling with Rational Rose. Incorporate CORBA standards for distributed objects in Java and C++ environments. Must have MS in Comp. Sci/Engg. and two years exp. Reply to: S. Nemani, Princetec, Inc., 4365 Rte. 1 Suite 110, Princeton, NJ 08540.

Application Architect-Established software company seeks application architect to serve as a focal point in the company's process to define, produce and improve software applications. Position requires eight years experience managing software development projects; experience in the analysis, design, development and implementation of system-based functions; experience with Enterprise Resource Planning systems; programming experience. Technical understanding of distributed computing architectures and messaging, and knowledge of industrial sector processes including manufacturing, supply chain and business financials required. Send resumes to HR Dept., Attn: R. Parsons, Falk Integrated Technologies d/b/a iWork Software, 7900-200 Triad Center Drive, Greensboro, NC 27409.

full-time Software Engineer responsible for analyzing user requirements, procedures and problems to automate processing or to improve existing computer systems using C/C++, CGI, UNIX, object-oriented programming, Database programming, Web Server, Java, SQL, MySQL and Analytical Skills. Set up and configuration of web site server. Must have a Bachelor's Degree in CS, related field, or foreign degree equivalent. Must have 1 yr of experience in job offered or a position with the same duties. Salary: $65,000/yr. Send resume to: Rachael Henderson, Well-Found Technology, Inc., 1395 S. Marietta Pkwy., Bldg. 400, Ste, 208, Marietta, GA 30067.

Computer Programmers-Plan, develop, test & document computer programs; evaluate user requests for new/ modifed programs; consult with users to identify operating procedures & clarify program objectives; read manuals/ periodicals/technical reports to develop programs that meet user needs; design computer terminal screen displays to accomplish goals of user; design database structure & establish data server; analyze, review & alter programs to increase operating efficiency; write manual; assist users to solve operation problems. Full time position. Requires a Bachelor's in Computer Science or related field + 2 years experience. Respond to Worldco, LLC, 110 Wall Street, NY, NY 10005, Attn: Bonnie V-HR.

Software Developer - Design/ develop/qualify/test/support large scale client-server prod. in Windows NT, define req'mts, prepare/present conceptual design & detail design, translate designs to software prod. using Windows NT/Borland's Delphi/ Visual C++/MS SQL/Paradox/ Crystal Reports/Word/Excel/ Access/XML/COM/DCOM/IPS. B.Sc.Computer Sc. or Engineerg & 2 yrs exp. in position or as Programmer req'd. Knowledge of Delphi/MSSQL/XML/COM/DCOM/IPS req'd. $65k/yr, 40 hrs/wk, OT as need. Send resume to: D. Root, HR Director, Alogent, REF#NM, 155 Technology Pkwy, Ste 400, Norcross, GA 30092.

SAP Basis Consultant needed for NJ office to install and upgrade SAP systems (46B and 31I). Must perform workload analysis, and system monitoring, tuning and troubleshooting using CCMS. Must configure transport, user setup including profile and security. Backup databases, test recovery procedures and apply advanced corrections and hot packages. Must have BS in Computer Engineering and five years experience or MS plus two years experience. Reply to: S. Swaminathan, Excel Corp., 3545 Cruse Road, Suite 309-G, Lawrenceville, GA 30044.

Sr Programmer Analyst: Analyze, dsgn, dvlp & implmt s/ware applics for Banking, Insurance, etc. Modify &/or enhance prgmg capabilities by using comp languages & skills in RPG/400, C/400. Sal $70K/yr + med benefits. MS in Comp Sci/Engg or BS in Comp Sci/Engg & PG Diploma w/5 yrs progressive exp. Resume to VP, Criterion Software LLC, 120 Wood Ave South, Ste 300, Iselin, NJ 08830.

Software Co. in NY seeks Project Leader/software prof'ls: Oracle or SQL d/base & web technologies w/C++, Java, VB/ASP prgmg; knowl of testing tools; Reqd. MS or equiv in educ & exp in Engg/CS or related field + 1 yr exp for Sr. positions & BS in Engg/CS + 2 yrs exp in s/ware dev. Competitive sal & Benefit pkg. Fax/email resume to (718) 982-0703 or sunil@infinitesoftsol.com

Web Developer wanted for F/T emplymt with publishing co. located in Brooklyn to develop and maint custom programs & front-end interface of company site. Use HTML, DHTML, Java, ASP and CGI technologies. Resumes to HR Dept, Romantic Times, 55 Bergen St, Brooklyn, NY 11201.

IT Professionals w/2-5 yrs of progressive experience wanted by computer consulting firm in Jersey City, NJ for the following positions: (1) Web Developers, Programmer/Analysts, Software Engineers with skills in Java, C++, VC++, VB. (2) NT/UNIX System admins and DBA's. Must have Bach or Masters degree in Engg, Math, Sci, Commerce or Eqv. Respond to: SpaceAge, 26 Journal Square, Suite 703, Jersey City, NJ 07306.

Java Developers needed to dsgn/dvlp/implmt s/ware to support e-commerce applics using Java, C, Oracle, HTML. Apply to: R. Gorga, Sengen, 1000 Briggs Rd, Mt. Laurel, NJ 08054.

Systems Analyst (Sr. Level) Analyze, dsgn, dvlp, test & implmt s/ware applics by applying OO prgmg techniques in C++ & Java. Convert project specs using flowcharts, diagrams dsgn techniques for 3-Tier architecture. Perform systems analysis, modify & enhance system applics for Fin'l/Communications/Imaging. MS in Comp Sci/Engg. Sal $75K/yr + Med Benefit. Resume to VP, Criterion Software LLC, 120 Wood Ave South, Ste 300, Iselin, NJ 08830.

Systems Analyst (Mid-Level) Analyze, dsgn, dvlp, test & implmt s/ware applics by applying prgmg techniques in Java & RPG. Perform systems analysis, modify & enhance system applics for Banking/Telecom. Convert project specs using flowcharts, diagrams & logical steps for coding. Determine, recommend & prep system applic s/ware, data summarization & technical reports. BS in Comp Sci/Engg w/2 yrs progressive exp. Sal $65K/yr + Med Benefit. Resume to VP, Criterion Software LLC, 120 Wood Ave South, Ste 300, Iselin, NJ 08830.

Systems Engineer/Analyst sought by Developer of Traffic Control Systems in Tallahassee, FL. Must have BS in EE or CS or CE & 2 yrs exp dsgng & dvlpg Video Trak Windows applics using MS & Borland C++ compilers.

Respond to: HR Dept, Peek Traffic Systems, Inc, 3000 Commonwealth Blvd, Tallahassee, FL 32303-3157.

System Admin/Oracle DBA w/MS, Comp Sci + 6 mos exp w/Oracle server products on Sun Solaris, and Windows NT/95 in mfg environment (or BSCS + 2 yrs exp). Will perform full life cycle development of multiple databases and train Jr DBAs. EDI System Analyst w/MS, Comp Sci + 2 yrs exp w/EDI development using Gentran-NT and VB (or BSCS +3 yrs exp) and participation in at least one system conversion of legacy EDI transactions to new ERP system. Will perform migrations from Gentran 2.1to 3.0 including testing and validation. Resumes to E. Prisby, Birmingham Steel Corp, P.O. Box 1208, Birmingham, AL 35201

Web Graphic Designer wanted to design and maintain web site. Bach. + 1 yr. exp. req'd. Send resume to HR Dept., Beta Business Products, Inc., 9 E. 38th Street, New York, NY 10016.

Database Administrators needed to analyze, dsgn, code d/base models & web pgs using PL/SQL, Oracle, TOAD, Erwin & Rational Rose. Apply to R. Gorga, Sengen, 1000 Briggs Rd, Mt. Laurel, NJ 08054.

IT SOFTWARE ENGINEER/ SYSTEM ANALYST needed to work on projects w/focus on Internet & C/S technologies. Use broad range of skills: Win, Unix platforms, VB, ASP, Java, C, C++, etc. Must have data modeling exp w/SQL d/bases. Must have BS in Comp Sci or related field w/at least 2 yrs exp in all stages of s/ware life cycle. We are also looking for IT consultants in other areas of expertise. Send resume to HR, Spatial Dimensions, Inc, 6 Sutton Place, Edison, NJ 08817. Fax: 732-248-8740.

SENIOR PROGRAMMER/ ANALYST (Columbia, SC) to perform system analysis and design, develop program, integrate and support computer software for agricultural bank loan applications using Object Oriented Analysis & Design, multi-tiered architecture, data modeling, Visual Basic, SQL, Stored Producers, MTS and SOL Server 7 on Windows 98/NT. Require: Baccalaureate degree (or foreign equivalent) in any discipline with at least 18 semester hours or 30 quarter hours (or foreign equivalent) of academic credit in Computer Science, or a closely related field, with 3 years of experience in the position offered or as a Programmer/Analyst; Experience must include 3 years using Visual Basic. Salary: $52,000 per year, 8:00 am to 5:00 pm, M_F. Send resume to: Recruiter, AgFirst Farm Credit Bank, P.O. Box 1499, Columbia, SC 29202. Attn: Job CM

Software Engineer, Must have Master's Degree and 1 yr. exp. designing and developing real-time systems for industrial controls using Visual C++ on Windows NT Platform. Must be proficient in C, Visual C++, databases and serial communications. Must have knowledge of Novell networks and all steps of software life cycle. Will develop applications for Prism controllers; Design Graphical User Interface to interact with device drivers for hardware controls; Develop in Visual C++ using MFC on Windows NT platform in real-time environment. Also, will support all steps of software life cycle as well as maintain user accounts, applications on network, bulletin board and Web page. 40 hrs/wk, 9am-5pm. $65K/yr. Apply in person or send 2 resumes to: North Metro, Job Order #GA 6942819, 2943 N. Druid Hills Rd., Atlanta, GA 30329 or the nearest Dept Labor Field Service Office.

Sr Software Developer - Design/develop/qualify/test/ support large scale client-server prod. in Windows NT, define req'mts, prepare / present conceptual design & detail design, translate designs to software prod. using Windows NT/Borland's Delphi/MS C/Visual C++/MS SQL/Paradox/Crystal Reports/Word/Excel/Access/XML/COM/DCOM. M.Sc.Computer Sc. or Engineerg. Bachelor Computer Sc. or Engineerg or academic equiv. & 5 yrs progressive exp. is substitute for M.Sc. Knowledge of Delphi/MS SQL/XML/COM/DCOM req'd. $70k/yr, 40 hrs/wk, OT as needed. Send resume to: D. Root, HR Director, REF#SR, 155 Technology Pkwy, Ste 400, Norcross, GA 30092.

Full-time Database Administrator/ Programmer. Responsible for the administration and maintenance of all production databases for the company. Establish and maintain a data warehouse for existing and future systems. Support and maintain all production databases for integrity of data elements an maximum performance. Perform all database tuning, performance monitoring and maintenance using UNIX, Informix, MS SQL and ESQL/C. Must have a Bachelor's degree in Computer Science or foreign degree equivalent. Must have 1 year of experience in job offered or position with same duties. Salary: $68,000/yr. Send resume to: Lori Smith, Vitel Technologies, Inc., 6080 Northbelt Parkway, Norcross, GA 30071.

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Job opportunities are also available for Sale Managers, Marketing Managers, Business Managers, Human Resources Managers, Controllers and Technical Recruiters. Bachelor's or Master's degree required, depending on position. We also accept the foreign educational equivalent of the degree or the degree equivalent in education and experience. Excellent benefits. Send confidential resume and salary requirements to: CyberTech Systems,Inc. 1111 W. 22nd Street, 8th Floor, Oak Brook, IL 60523 OR 8 Neshaminy Interplex, Suite 209, Trevose, PA 19053.An equal opportunity employer.

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- LAN/WAN Specialist (CISCO)

APPLICATION DEVELOPMENT
- Microsoft Certified Solution Developer (Visual Basic, Visual C++)
- Database Administrators (Oracle, SQL Server)
- Web Based Development (Java or JavaScript, CORBA, Microsoft ASP, ActiveX, COM/DCOM)

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Software Developer
CBH Consultants, Inc., a growing integrator of mid-market business management systems has an immediate opening for a Sr. Software Developer in the Orange County, CA area. Position requires an understanding of business process mapping and high-level programming using OOD. Applications are Microsoft and Internet-focused with an emphasis on the project and wholesale distribution industries. Experience with object oriented development and databases are required. Qualified candidates must have a bachelor's degree in Comp Sci, Engineering, Math or related field and at least 5 yrs exp. Competitive salary, incentive, benefits and training programs. Submit resume and cover letter at www.cbhinc.com or send to:
220 Technology Dr. Suite 220
Irvine, CA 92618
fax 949.450.1089
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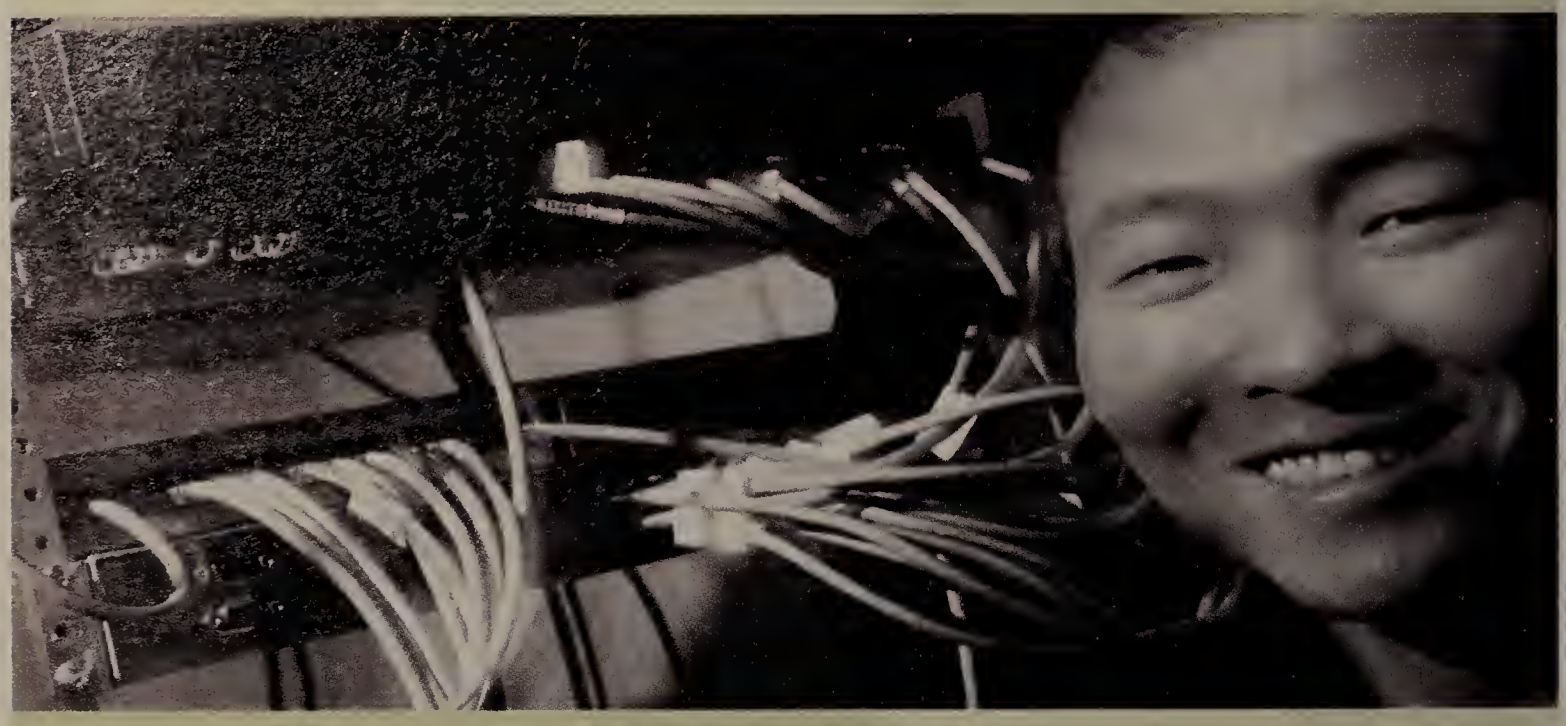

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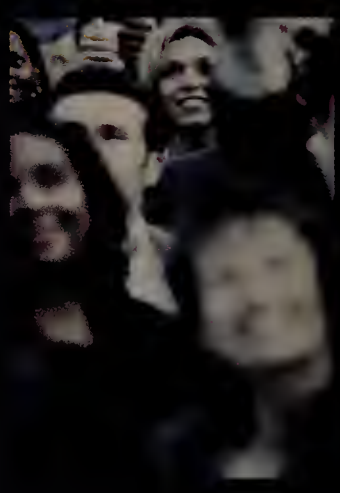

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IT Careers with the Internet

There's no part of the information technology world that isn't linked to the Internet. It weaves, winds and infiltrates every element of software development, architecture and systems being developed for the new e-conomy. There are, however, some businesses whose specialty is the Internet itself — how it works and what its next offspring will be. Here's a look at some of those companies.

CSX Technology — Jacksonville, FL

Most people know CSX as the railroad giant. CSX Technology is the information technology shop that supports the transportation leader, from providing data center management to diagnostic systems for the repair of railcars and locomotives. The miles covered by the railroad between customer and success depends to large degree on the Internet.

Jack Morgan, assistant vice president for human resources, says CSX Technology has 560 employees. "Our web development projects are partnerships between customers, the railroad business and CSX Technology," says Morgan. "We're developing products that help with the exchange of data and information. These products include new methods of communicating to our customers through shipment tracking, price management and portal design to facilitate supply chain management and customer interaction.

"As we grow in the internet/intranet area, we need employees with great attitudes, experience and an aptitude for mid-tier technologies ranging from PL/SQL to Java developers," says Morgan. We use a two-track system that measures not just technical competencies but core competencies that include accountability, action orientation, integrity/trust, teamwork, customer-focus and technical agility. We need people who can deal with change, who have business acumen and project management skills.

"We can offer a variety of leading-edge technology career options," Morgan adds. "Every CSX employee receives training annually. In 2000 we finished the year with an average of 34 hours per employee. We're a dynamic company that is in a growth industry. When you add to these factors the people who work here, it makes for a great place. Here you'll find a warm, friendly, fun environment where we work hard."

Genuity — Cambridge, MA

Long before there was an Internet, there was ARPANet. The brainchild of technologists at MIT and Genuity, then known as BBN, ARPANet exploded in the last decade as the Internet, changing the way companies work and the way that the world economy takes shape. BBN was later acquired by GTE and then was spun off as Genuity, when GTE and Bell Atlantic formed Verizon. It was the first Tier 1 Internet backbone company in the world, according to Carolyn Churcher, Genuity's director of employment. Today the company is providing services to some of the best-known names in the Internet world — Yahoo!, Earthlink and AOL among them. As part of its latest innovation, Genuity rolled out a new product known as Black Rocket. "This is a turn-key networking solution that can be assembled in just 10 days for a customer," says Churcher.

In addition to bringing the speed of the Internet to the development of a network, Genuity continues to focus on the grandchild of ARPANet — the next generation of the Internet. "We'll be hiring 1,000 people in 2001," says Churcher. "In developing a new Internet or extending the capability of today's Internet, we need systems administrators, network engineers and software engineers."

Genuity has offices in the Northeast, the West Coast and data centers throughout the United States, offering individuals a variety of places to work. Genuity uses UNIX and NT skills, as well as standard software and network technological skills. "We look for individuals with this technical expertise, as well as those who have the ability to grow and evolve with this business," says Churcher. "We're no newcomer to the Internet market, and we intend to maintain our position at the top of this business."

Net Quotient — New York, NY

Customers believe in Net Quotient's ability to provide a back-end solution for Internet capability. Similarly, Net Quotient's leaders believe in the company's employees. It's one of the primary reasons employees give for coming and staying at the company, which provides technology consulting to Global 2500 companies.

Joan Samaniego, recruiting manager, says that the company looks for highly experienced individuals who have a single interest — creating the best web-enablement backbone possible for clients. "We go to our clients as an experienced team with a solution for their technology needs," says Samaniego. "This is a place where you can be a big fish in a small, highly talented pool of experts, where every opinion counts."

Net Quotient began as the technology-consulting arm of recruiting firm PenCom. Today, Net Quotient is owned by Formula Group, a corporation of more than a dozen Internet-based companies, including Applicom, Net Quotient's parent company.

Net Quotient is hiring senior level web architects and technical project managers. Samaniego says the company also is hiring sales and business development people with a talent for creating and maintaining relationships with clients of all sizes.

"Candidates want to work here for the people who interview them and who already work here," Samaniego adds. "We are always hiring, continuously searching for talented people. We create positions for people who are right for us." In addition to the NYC office in Silicon Alley, Net Quotient has offices in Austin and Dallas, and London. Plans include opening offices on the West Coast and on mainland Europe.

Worldcom — Atlanta, GA

Worldcom employs more than 77,000 people worldwide. And each of them can quote the future for Worldcom — Generation D. The data generation — how it works, how it thinks and how it operates is the focus of this communications giant that began as a local and long-distance telecommunications provider.

"We've evolved into much more than a phone company," explains John Adams, regional technical recruiting manager for the East Coast. "Our direction today is toward more web hosting and the exchange of data and information, in whatever form. We provide web server co-location and support administration and monitoring of communication systems.

"The technological challenge is fantastic," says Adams. "Our size creates a lot of opportunity for those who join Worldcom. Here you'll be able to see the global impact of what your technology creates. We will be doing a lot more to continue to be a pioneer in this business. Here you'll work with very talented people, you'll be encouraged to push against the status quo, and that means learning and growth for you as an individual."

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David Mooney, Sales Assistant
Internet: dseay, dmooney@nww.com
(404) 845-2887/FAX: (404) 250-1646

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Tracking,
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support message tracking within a year.

Message tracking is "the top new feature I see coming out in Internet mail this year," says Paul Hoffman, director of the Internet Mail Consortium and an IETF participant.

"It gives e-mail administrators two really important things: the ability to track the messages they send out ... and the ability to know when their e-mail systems aren't working," he adds.

For corporate network managers, the new message tracking capability should spur the use of e-mail for sending legal documents, contracts and invoices — anything that requires accountability.

"It's probably a good idea as long as the administrator can control the return information and can set controls about what end users can and cannot do with this information," says Joe McKee, a principal electrical engineer with Salt River Project (SRP) in Phoenix.

A quasi-governmental organization with 4,500 employees, SRP uses Microsoft Outlook and Exchange as its client/server e-mail software, and Sendmail as its Internet e-mail gateway. McKee says he'll be interested in the message tracking protocol when Sendmail supports it.

"We're still in the paper world for our legal documents. But with encryption, digital signatures and message tracking, I would envision that in a few years, we'd start to move more toward a paperless society and we'd start sending more documents by e-mail," McKee says.

The Message Tracking Query Protocol works along with an extension to the Simple Mail Transfer Protocol (SMTP) that provides the necessary information to track messages. Once a message goes awry, the Message Tracking Query Protocol lets the sender's e-mail system go to the site where the message went first to see if it was sent on and where it went. The sender can trace the message over multiple hops and across different e-mail systems to find out what happened to it. This capability lets the administrator fix e-mail system glitches and resend delayed messages.

Developers of the message tracking protocol foresee great demand in corporate environments, particularly in situations where a message sender needs to know when a message doesn't arrive.

"If you're sending a document with legal ramifications and it doesn't get there, what do you do?" asks Tony Hansen, a principal technical staff member with AT&T Labs. "You can set the [Delivery Status Notifications] to send a receipt back when it gets there. But if it fails to get there, if it's stuck in a queue somewhere, you don't currently have any way to figure out where it's stuck."

"There are no outstanding technical issues [regarding the Message Tracking Query Protocol]. It's just a matter of getting everything down on paper."

Tony Hansen, principal technical staff member, AT&T Labs

The IETF working group has written four documents outlining the SMTP extension and the Message Tracking Query Protocol. One document is in last call, the final step before being published as a Request for Comments. The other three documents will be sent to last call in a month or two.

"There are no outstanding technical issues. It's just a matter of getting everything down on paper," says Hansen, who authored three of the documents.

The message tracking protocol eliminates one of the last highly desired feature that we haven't had in SMTP until now."

Eric Allman, a co-author of the IETF protocol documents and CTO at Sendmail, says message tracking and encryption are essential for e-commerce. "When you think about bank statements and bills being delivered by e-mail, message tracking becomes very important," Allman says.

Allman says Sendmail will support the SMTP extension and the Message Tracking Query Protocol in upcoming versions of the open source and commercial Sendmail software. Lotus says it doesn't have immediate plans to support message tracking in Notes and Domino, but it will consider doing so based on customer feedback.

One challenge for the Message Tracking Query Protocol is how it will operate with corporate firewalls. Some companies will want to prohibit tracking through their internal messaging systems, instead letting e-mail gateways at the edge of their networks respond to tracking queries. Other companies may allow tracking for internal messages or for messages sent by a handful of trusted trading partners.

"One of the biggest advantages of message tracking is that two parties who communicate regularly can set it up to have an alerting capability when they see an anomaly," Hoffman says.

Another challenge is that corporate network managers must maintain a message tracking database in order to respond to queries. In addition, message tracking only becomes useful as it is widely deployed across the Internet, which will take a few years.

Despite these challenges, industry observers expect message tracking to have a significant impact on e-mail users and administrators.

"Message tracking will impact people's lives," Allman says. "It's one of the reasons FedEx and UPS are so useful." ◪

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VPN,
continued from page 8

server within one of six Pilot Security Centers (see graphic, page 8). There, all traffic is screened by Pilot's firewall and checked by intrusion-detection and other security software. Traffic reaches customer headquarters sites via dedicated lines.

Pilot charges $10,000 to set up the service, plus a $550 monthly maintenance fee and $10 per month for each user.

In the security zone

Zone Labs of San Francisco is introducing a package dubbed Integrity, which consists of server-based management software and client security tools for remote PCs. The client software incorporates a firewall, scans e-mail attachments for up to 37 suspicious file extensions and includes an application-control feature that alerts users when an application is attempting to use the Internet. This is to prevent applications planted by hackers from compromising the hacked PC.

Integrity server software runs on a centrally located Solaris, Windows or Linux server, and Integrity client software runs on Windows. Later this year, Zone will extend support to Macintosh and Windows CE clients.

This software protects individual remote user machines from Internet-borne attacks, particularly those connected via permanent connections such as DSL and cable modems. Integrity clients are similar to Zone's ZoneAlarm and ZoneAlarm Pro software, but the latter two cannot be centrally managed.

"[Integrity] will save enterprises a ton of money on the acquisition side," says Jim Hurley, an analyst at Aberdeen Group. "They can buy a PC security package rather than a bunch of individual point products."

Customers will have to wait to find out just how much Zone's software might save them because pricing hasn't been announced yet. The product is being introduced at the DEMO 2001 conference in Phoenix this week.

Zone, which was founded in 1997, recently announced it is working to make its software compatible with VPN software from SafeNet and VPN hardware from Radguard. Other Zone partners include Verizon, Ericsson, Tivoli, Prodigy and Trend Micro.

Pilot: www.pilot.net; Zone: www.zonelabs.com

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HIPAA,
continued from page 1

has ever put on hospitals, physicians and insurance companies to ensure patient data, whether in electronic or paper format — is kept confidential.

The regulations have IT managers and hospital administrators poring over the mammoth HIPAA rules to decipher what is HIPAA compliant for access control, authentication and audit trails.

Take Jeff Sanford, HIPAA compliance director at Eastern Maine Healthcare, a five-hospital system based in Bangor.

Sanford says his hospital system, which already files 80% of its insurance claims electronically, will need to support the new HIPAA electronic data interchange (EDI) formats. So Sanford is waiting on application vendors and the electronic "clearinghouses" that serve the healthcare industry to be ready to support the new formats that he could be required to use in about a year.

"Obviously, it's a great market driver to be able to say your CIO could go to prison for 10 years if you don't buy this software."

Bob Blakely, chief scientist for security, Tivoli

Service providers such as SBC and its EDI division, Sterling Commerce, claim they are ready to offer HIPAA document translation services over a proprietary value-added network or the Internet, with encryption.

Privacy choices

For Sanford, the tougher issue is addressing the patient privacy piece, especially because the security rules are still only in draft form.

The NT and Unix servers, Oracle databases and other equipment connected to the hospital system's WAN were never designed for the kinds of auditing and access controls envisaged under HIPAA, Sanford points out.

Under his reading of the HIPAA rules, Sanford says passwords are acceptable for user access. But many security vendors are pushing public-key digital certificate, he notes.

A bonanza

HIPAA is a bonanza for security vendors and consultants. Computer Associates is urging hospitals to buy its eTrust Single Sign-on product with fingerprint biometrics.

"HIPAA requires user authentication, so we envision doctors will use their fingerprints to sign on," says Simon Perry, CA's vice president of security solutions. "Biometrics is the only way of tying access to an individual."

There's no consensus about what HIPAA means in terms of technology deployment. Mary

STAN BAROUH

Reynolds, CTO for the state of Illinois, thinks HIPAA is better satisfied through use of digital certificates for signing documents electronically.

Crime and punishment

Throughout this debate, lawyers, consultants and software vendors have hopped on the HIPAA bandwagon, reminding everyone that their CIOs could go to jail for noncompliance.

"Obviously, it's a great market driver to be able to say your CIO could go to prison for 10 years if you don't buy this software," Bob Blakely, Tivoli chief scientist for security, says ironically.

Tivoli, a division of IBM, is selling an access control product called Privacy Manager to hospitals to provide fine-grained controls for accessing online medical records.

However, Blakely candidly points out that what HIPAA is trying to mandate in terms of patient privacy goes far beyond what traditional security policies have ever attempted to do.

"Traditional security technology wasn't designed to protect privacy — it was designed to protect 'my stuff' against outsiders," Blakely says. "Privacy is protecting somebody else's stuff in my possession against custodial abuse by someone else."

Legal agreements

Healthcare organizations, at a minimum, are bound under HIPAA to force any business partner that sees patient data — such as Web-hosting firms and IT contractors — to sign a legal agreement to follow HIPAA guidelines, too.

"You need to have a signed agreement with each of your business partners," says Stephen Brown, an attorney with Bogatin Law Firm of Memphis, Tenn., which has been closely following the HIPAA saga. "The agreement should stipulate that business associates won't disclose protected medical information and that they will make appropriate records available to the Department of Health and Human Services, if needed, to prove they took protective measures."

"It's fairly onerous," says Richard Peterson, director in Computer Sciences' global health solutions division. "You have to get consent from the patient in order to share data with business associates as well as other healthcare providers and pharmaceutical organizations."

In addition, each HIPAA-covered healthcare organization will have to document privacy practices and security policies — and this, say lawyers, will aid greatly should an organization have to defend itself against charges of defying HIPAA. ◪

The Scoop

The news behind the news

HIP DEEP IN HIPAA

Wade through the 1,776 pages of the Health Insurance Portability and Accountability Act and you'll find that:

- Healthcare providers, pharmacies and insurance companies must use roughly a dozen new electronic data interchange and electronic code transaction sets, in a secured manner, for sharing information on health claims, payment and remittance by October 2002. This goes for sharing with state and federal authorities as well.
- The organization entrusted with patient health information must protect the privacy of that information during internal use and when transmitting that information to another party, which must also comply with HIPAA. An audit trail must be maintained to prove patient information was protected.
- Healthcare organizations must appoint at least one "privacy officer" to conduct a risk assessment of business practices and IT systems, document security practices and stand prepared to resolve complaints.
- The penalty for wrongful disclosure of "individually identifiable health information" can be as high as $50,000 per incident, plus a year in prison. If there is intent is to transfer information for commercial advantage, the penalties hit $250,000 and up to 10 years in prison.

February 2003 is seen by many as the time organizations could face prosecution for noncompliance.

— Ellen Messmer

Win 2000,
continued from page 14

Gartner says it will be closer to 35% Others, such as IDC, predict slightly more than half of NT servers will be converted by year-end.

"We are surprised how slow adoption has been on the server side," says Neil MacDonald, a Gartner analyst. "Microsoft made a critical error in not being forthcoming about the effort required to deploy Windows 2000 and Active Directory."

Microsoft CEO Steve Ballmer, however, was happy last week when he announced that Win 2000 will top one million server licenses this month. But critics say that number includes upgrade deals and downgrade licenses, which let users buy a Win 2000 license but run an NT server. One Microsoft insider says the number of actual new licenses sold may be as low as 200,000.

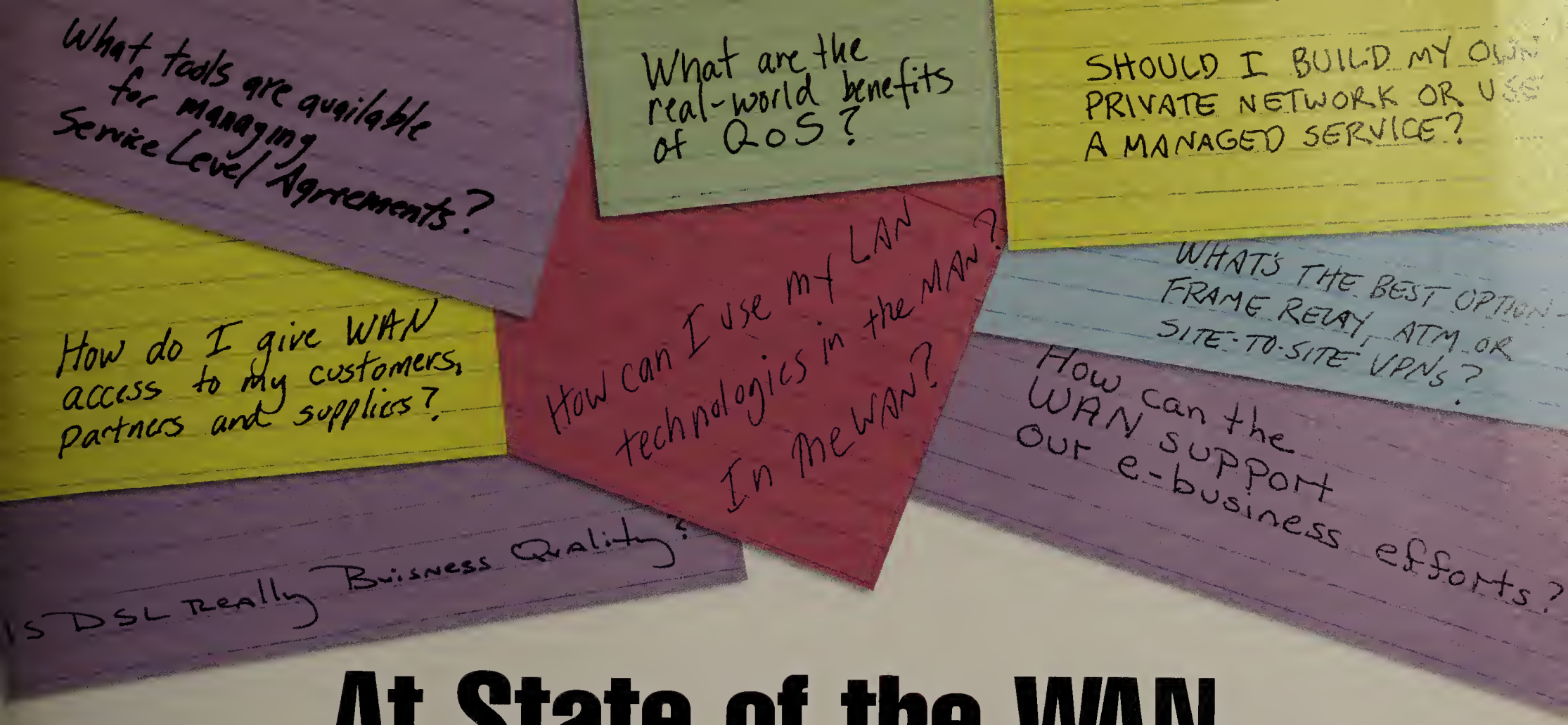
Microsoft still contends that moving to Win 2000 will pay off for NT customers, reducing total cost of ownership by 18% a year, according to Peter Conway, director of Microsoft's large enterprise server team.

Tom Manter, an Aberdeen Group analyst who last month authored a study on Win 2000 reliability, says to realize cost savings, users need to run applications designed for Win 2000 and run the operating system in a data center-like manner. "If you do those two things, you will see significant improvement in uptime over NT."

Conway admits that users have been stymied by Active Directory. "It's taken a little more time to absorb, but as the knowledge about the directory improves, the migration cycles will shrink."

But for now, migration cycles appear to be growing.

"There is no doubt that IT is resetting its expectations," says David Waugh, vice president of marketing for FastLane Technologies, which develops migration tools for Active Directory. "It's not the technology — it's the sheer logistics of the upgrade. People have learned a lot over the past year." ◪



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Backspin

World domination and irrational gloom

MARK GIBBS

ver the past few months the stock market indices have slid down, nervously recovered, then declined once more. Now the Nasdaq is in the same territory as it was in August 1999, and there's talk of economic slowdown and theorizing on the likelihood of a depression or recession.

And central to all this talk of doom and gloom is the issue of who is to blame. Well, according to common wisdom, a guilty party isn't hard to find — it was the high-tech industries and, in particular, the dot-coms.

The general theory on how the whole mess happened goes something like this: It was all the fault of arrogant, wet-behind-the-ears college kids and opportunity-grabbing ne'er-do-wells building pie-in-the-sky companies with the intrinsic financial longevity of a moth homing in on a bug zapper, aided and abetted by rapacious, money-grubbing venture capitalists, all fueled by a rampant optimism that by March 2000 made Greenspan's 1996 accusation of investor's "irrational exuberance" look like one of the greater understatements of the decade.

Some of this hostility is justified — who can forget the dot-com businesses that burnt money faster than Larry Ellison's yacht and were justified by theoretical revenue based on hypothetical advertising income? With the benefit of hindsight, it all looks pretty silly, but that's not the full story.

We were all to blame. The promise of the future and the lure of fabulous wealth excited everyone. We watched the likes of Marc Andreessen go from being an unknown nerd to being a fabulously wealthy nerd faster than you can say "stock options." We all thought, "If he can do it, so can I!" It was the American Dream on amphetamines, and it grabbed us.

Driving this were venture capitalists and angel investors who would never have paid many of the would-be entrepreneurs the slightest attention under normal circumstances.

But because of the irrational exuberance of the times, the investors stuck their hands in their pockets to fund even the silliest of ideas ("You want to start a what? A company selling dog food online? Only dog food? And there are a dozen other companies doing the same thing? And you will capture market share by capturing eyeballs through advertising? Here, take $10 million and call us if you need more.").

Then March 2000 arrived, and irrational exuberance ran for the horizon with its butt on fire. Suddenly, the party was over, and the market mood-o-meter swung from wild optimism to deep gloom. In double quick time a sullen silence settled over the market disturbed only by the typing of journalists, as they worked on into the night over smug features about why the New Economy was doomed from the beginning.

What bothers me about the current situation is the lack of optimism. There's an air of defeat that is clearly at odds with what the dot-com phenomenon created and the influence it had (and continues to have) on the entire world.

What we — the computer and network industry along with the dot-commies — created was a communications framework for our culture that in true American style was so seductive it penetrated and changed every culture it touched (the Levi Jeans Effect).

It is a framework so powerful it can't ever be taken apart or even really controlled. Indeed, it could be argued that it is now as much a part of and as central to our culture as the telephone, the railroads and the automobile.

So let's stop whining about what went wrong and start looking forward. Let's recognize that we — the nerds, the business people and the market in general — have transformed the world forever and for the better. Now, let's see the Nasdaq start to rise again.

Rational exuberance to mycol mmm@gibbs.com.

'NET BUZZ

The latest on the Internet industry

PAUL MCNAMARA

In this business, e-mail newsletters are to the "print vs. online" debate what Dr. Pepper is to "Coke vs. Pepsi": a third choice that doesn't get the respect it deserves.

Despite being a longtime fan of e-mail newsletters and a subscriber to far too many, the power they hold for attracting readers and encouraging interaction with them was driven home anew last week by a personal experience.

A bit of background: In *Network World* last July 17, I authored a lighthearted article/personality quiz headlined "Put your career choice to the test" (www.nwfusion.com, DocFinder: 2933). The piece got strong reviews internally from my easily amused colleagues, but initially did very little box office as measured by the volume of reader e-mail. In this case, very little means none that I can recall.

None until last week, however . . . about six-and-a-half months after the story appeared in print. For no apparent reason — at least to me — I started receiving lots of e-mail from readers about that article; maybe 15 in all, which is a torrent for a story that didn't say anything bad about Linux or good about Microsoft. (Some liked the piece; others hated it a lot . . . subject for another column.)

The e-mails were coming to me via our Fusion Web site, leading *Network World* online guru Adam Gaffin to speculate that another news site had linked to the story/quiz, and that link was responsible for generating the delayed interest. Adam was wrong, which, by the way, almost never happens.

You've probably guessed that an e-mail newsletter was the driving force behind this unexpected march on my in-box. Moreover, the newsletter in question was one of 44 that *Network World* distributes to about 200,000 subscribers, an ever-growing operation that may explain our initial inability to pinpoint the source. This particular newsletter touting Fusion's "hidden secrets" went out last Monday and within three days had generated 3,600 views of "Put your career choice to the test."

The lesson for content providers: People really do live in their in-boxes; it's not just a cliché. An e-mail newsletter finds a self-selected audience where they are most comfortable, fully engaged and a click away from your Web site.

You simply can't do that with print or online alone.

E-mail newsletters inevitably raise spam concerns, but we'll sidestep that issue in favor of bringing you up to date on a different front in the war against unwanted commercial correspondence.

Many spammers are parasites who latch onto the e-mail servers of unsuspecting or inattentive organizations to spew their junk to the masses without bearing the cost. This "relay spam" can and should be prevented, at least in most cases, by configuring your Simple Mail Transfer Protocol gateway to differentiate between authorized and unauthorized traffic, says Paul Hoffman, director of the Internet Mail Consortium (IMC).

For three years, Hoffman has been running a spot-check of SMTP servers to determine how many are hospitable hosts to these inhospitable spammers.

"The results show that over 6% of mail servers that are named in mail addresses allowed relaying in January 2001, a reduction from 17% from a year-and-a-half earlier," Hoffman writes in an IMC newsletter. "While the large drop is encouraging, these numbers show that a great deal of work must be done before the number of relays is so low as to make it difficult for [an unsolicited bulk e-mail] sender to find an available host other than one with which they have a business relationship."

In other words, too many people are still leaving their doors unlocked. And until that changes we cannot expect too much spam relief from this tactic.

Keep your spam to yourself, but comments and tips are always welcome. The address is Buzz@nww.com.

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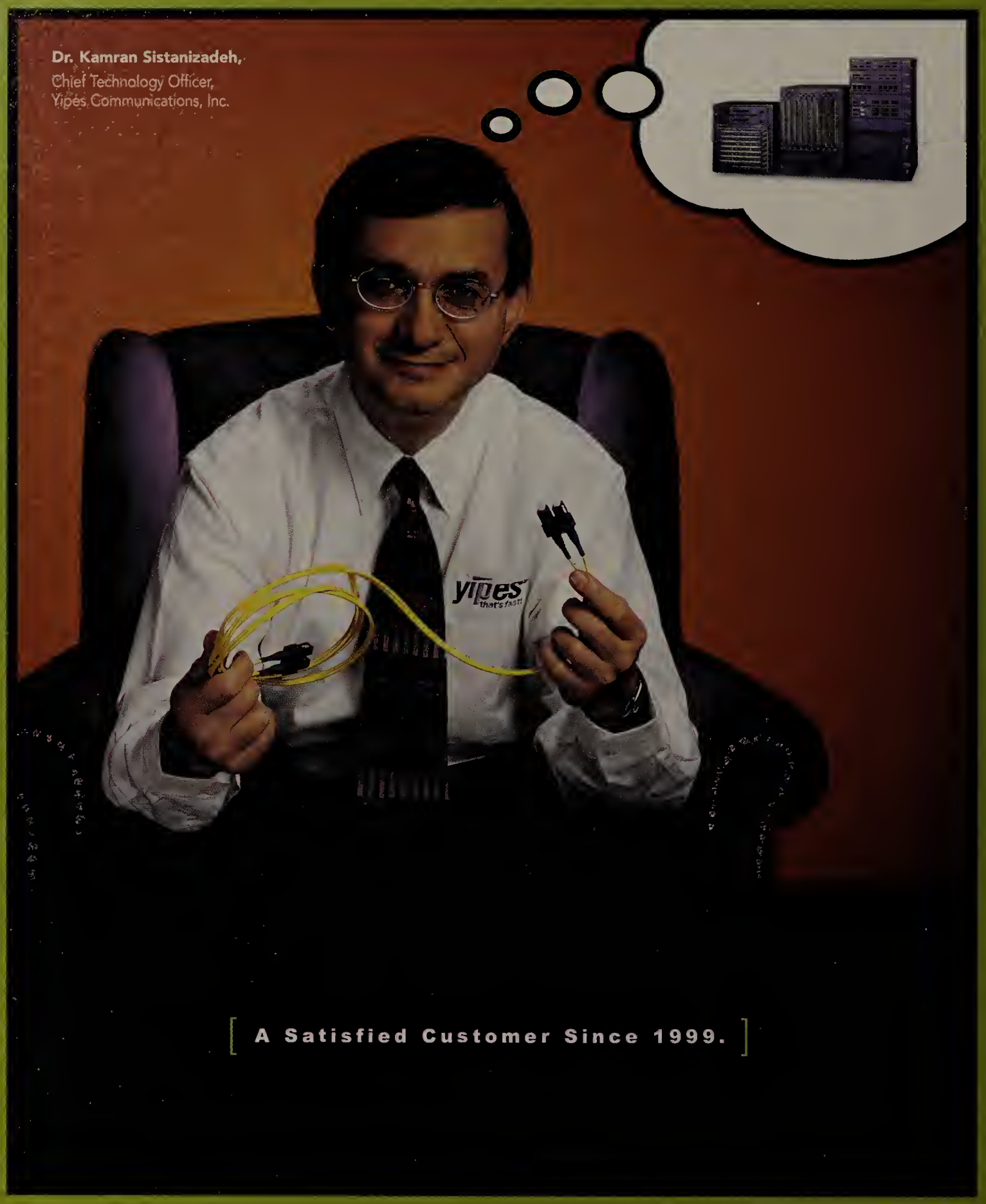

If the look on the CTO's face is any indication, Yipes Communications, Inc. is one happy camper. Yipes — the defining provider of Ethernet-based metropolitan optical networks for IP services — is offering businesses in over 20 major U.S. cities a fast, scalable and extremely affordable alternative to ATM and SONET. Because of Extreme Networks' Alpine™, BlackDiamond® and Summit® switches, Yipes can provision its customers with bandwidth on demand — from 1 Mbps to 1 Gbps — over the same strand of fiber. A powerful networking solution that's a dream come true — for everyone except the competition.

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